APC-3X19
User Manual

Release Date	Revision
Apr 2014	V2.3

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Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications.
It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are
dangerous high voltages inside.

Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

Packing List

Accessories (as ticked) included in this package are:
☐ Power Connector ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to avoid your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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Figures

Chapter 1 Getting Started

1.1 Specifications

Model No. / Specs	APC-3519	APC-3719	APC-3919
System			
Processor	Intel G2 socket, support up to 3rd Gen Core i7 3630QM 2.4GHz Processor		
System Chipset	Intel HM77		
System Memory	2 x 204 Pin DDR3 SO-DIMM, up to 16GB 1066/1333 MHz		
Storage	2 x 2.5" SATA HDD space, easily accessible storage design 1 x external CF slot		
External I/O			
USB	4 x USB 2.0 type A		
Serial/Parallel	3 x RS-232 DB9 1 x RS-422/485 selectable default RS-485 DB9		
Audio	1 x MIC-in, Line-out phone jack		
Graph	1 x DVI-I		
LAN	2 x GbE RJ-45		
Digital I/O	1 x 8 pin 6 GPIO/VCC/GND terminal block connector for option		
KB/MS	None		
Membrane Control	None		
Power	1 x 3 pin DC power connector 1 x Rocker switch for power on/off 1 x 2 pin remote power switch 2 x LED light for power and HDD indication		
Expansion			
On Board Expansion Bus	1 x Mini PCIe full size		
Expansion Slot	1 x PCIe x 16 slot default 1 x PCI slot option		
OS support	Windows XP embedded, Windows embedded standard 7, Windows 7 Pro for embedded		
LCD			
Display Type	15”	17”	19”
Max. Resolution	1024X768	1280X1024	1280X1024
Max. Color	262K	16.7M	16.7M
Luminance (cd/m2)	420	350	350
View Angle(H/V)	160:160	170:165	170:165
Backlight Lifetime	50,000 hrs		
Touch Screen (option)			
Type	Resistive Touch		
Light Transmission	80%		
Power Supply			
Power Input	DC 9~32V On Board		

Power Consumption	Max:51.3W	Max:44.2W	Max:44.2W
Mechanical			
Structure	Black steel front bezel, black steel back cover with aluminum heat-sink		
IP Rating	Panel IP65		
Mounting	Panel Mount/ VESA 75x75		VESA 100x100
Dimensions (WxHxD) (mm)	410x310x119	439x348x119	484x400x115
Gross Weight	8.9 kg	9.8 kg	12.1 kg
Environmental			
Operating Temperature	0~50 ° C		
Storage Temperature	-20~60 ° C		
Storage Humidity	10~90% @40 ° C non-condensing		
Certificate	CE/FCC Class A		

1.2 Dimensions

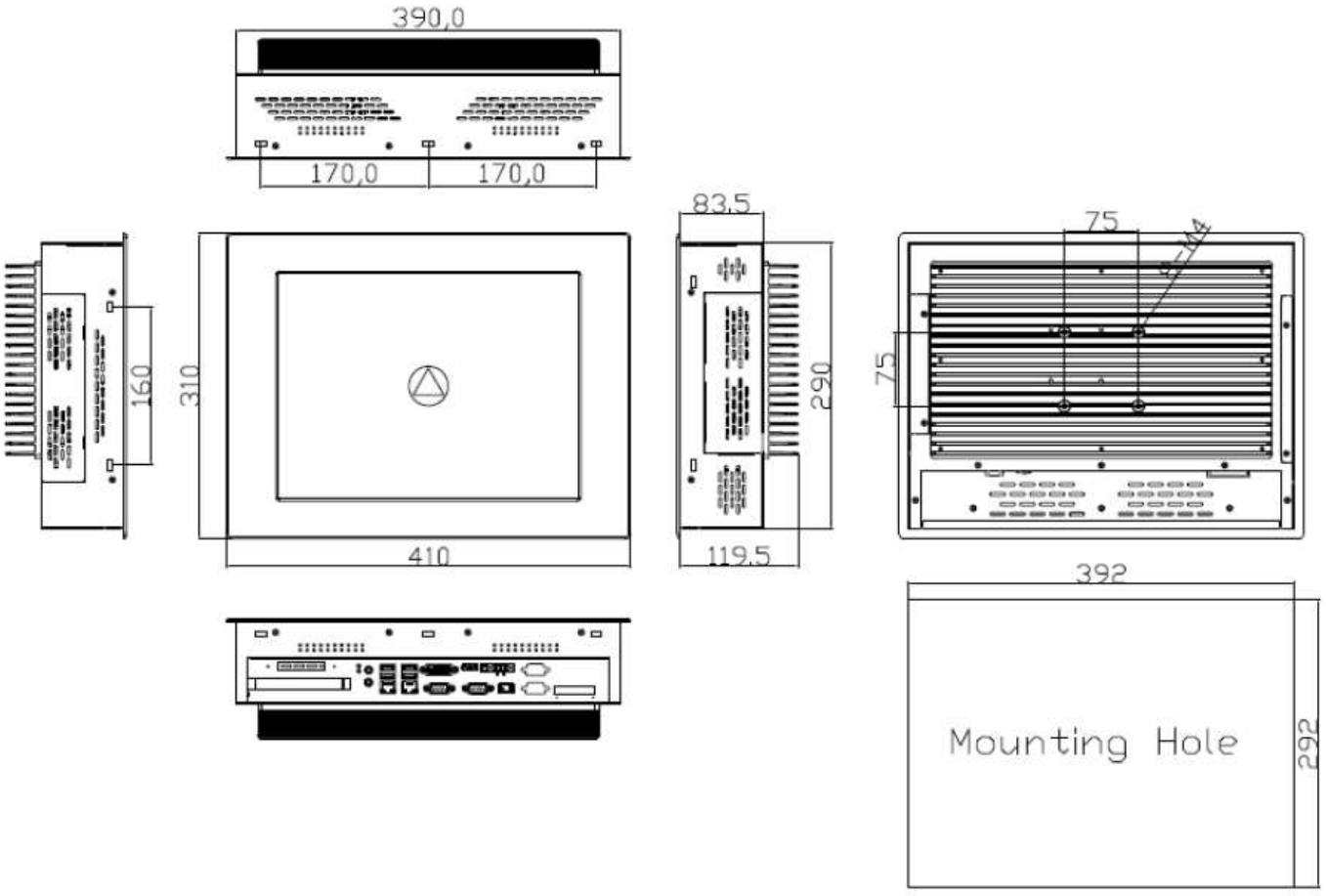


Figure 1.1: Dimensions of APC-3519

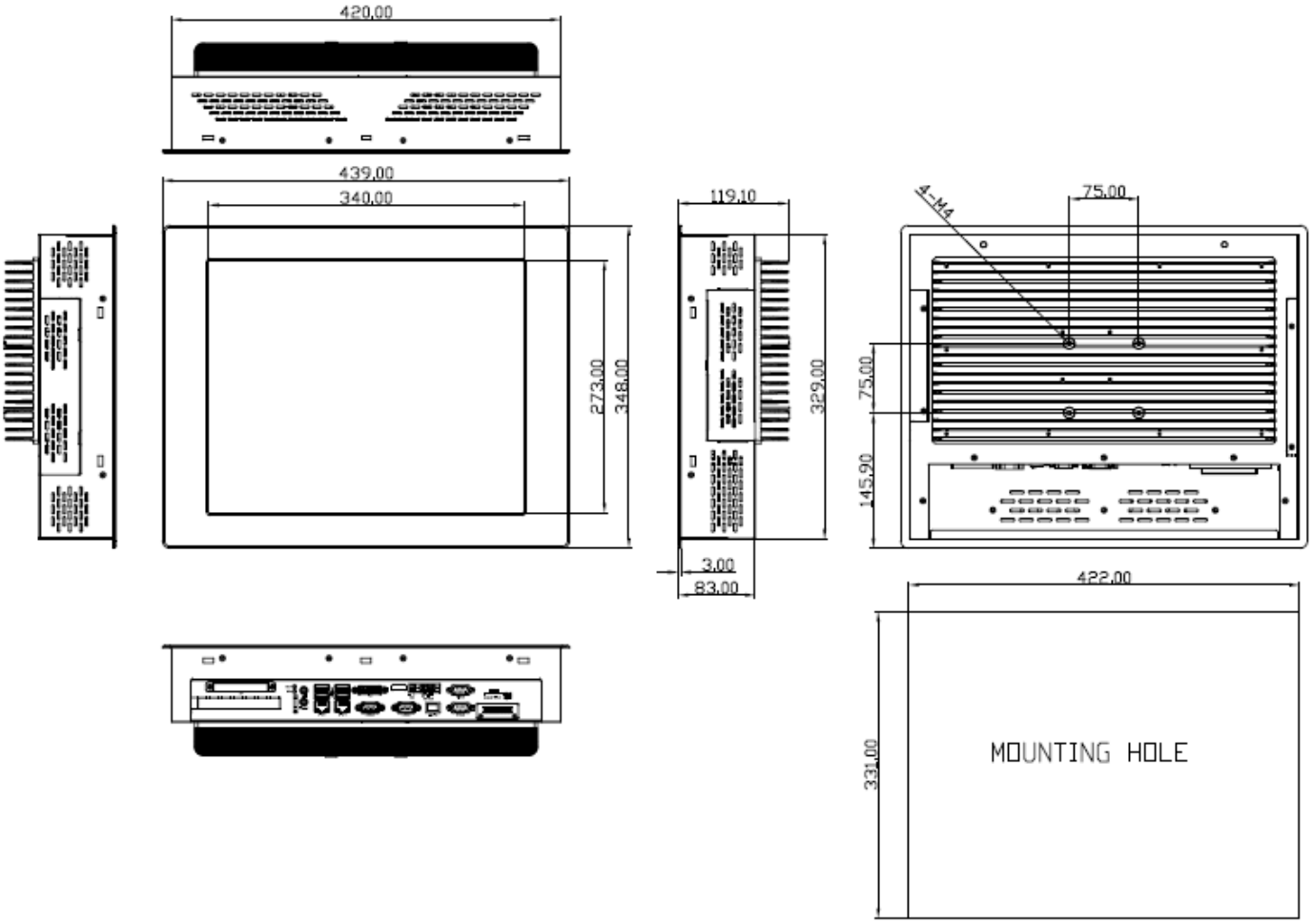


Figure 1.2: Dimensions of APC-3719

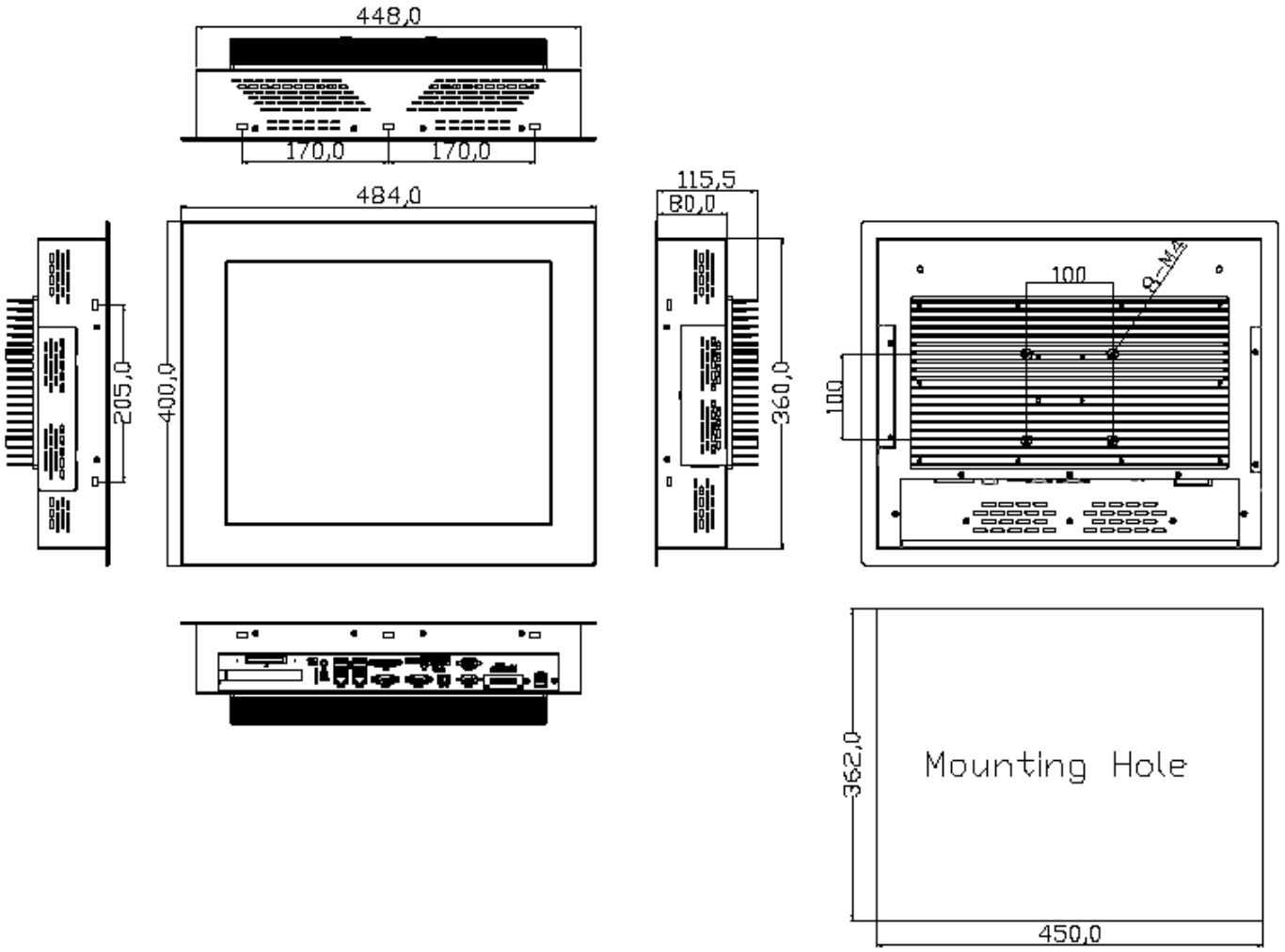


Figure 1.3: Dimensions of APC-3919

1.3 Brief Description of APC-3X19

APC-3x19 is a fanless and high-performance panel-mount industrial panel PC with 15”/17/19” TFT LCD. It is powered by Intel HM77 chipset and support Core i3/i5/i7 Processor up to i7 3630QM 2.4GHz. The panel PC has a rich variety of functions and peripherals. It supports DDR3 memory up to 8GB, rich I/O ports, and a wide range 9~32V DC input. APC-3x19 also provides 1 x PCIe x 16 or 1 x PCI slot, ensuring simplified connectivity to a variety of external peripheral devices. The OS supports Windows XP embedded, Windows embedded standard 7, Windows 7 Pro for embedded. The unit deal for a wide range of applications including digital surveillance, data/image acquisition, factory automation and industrial applications.

Figure 1.4: Front View of APC-3X19

Figure 1.5: Rear View of APC-3X19

1.4 Installation of HDD

Step 1

There are 2 screws to deal with when enclosing or removing the HDD bracket.

Step 2

There is 1 screw to deal with when enclosing or removing the HDD Tray.

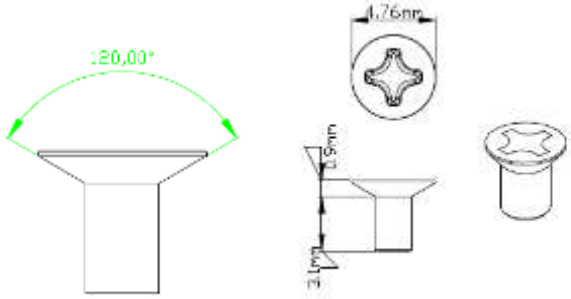
Step 3

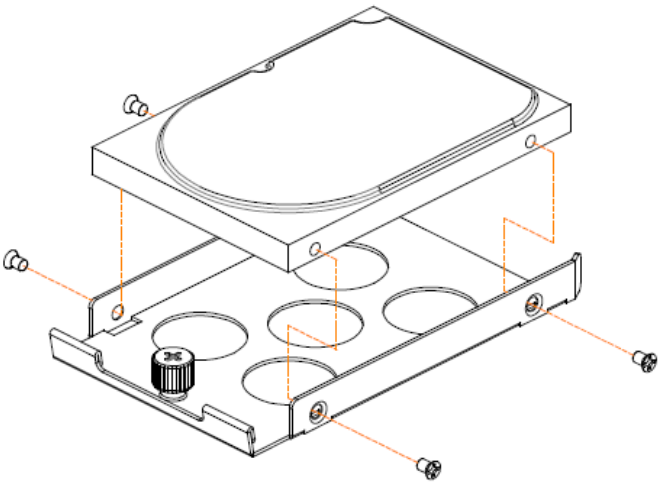
Loosen screw and draw the HDD bracket out as shown in the picture

Step 4

Tighten four screws as shown in the picture.

F Screw M3*5L 120°





Step 5

Push into the HDD bracket as shown in the picture

Step 6

That’s how it should look after it has been installed.

1.5 Installation of Riser Card

Step 1 There are 2 screws to deal with when enclosing or removing the bracket.	
Step 2 Remove the cover.	
Step 3 Loosen the screw.	

Step 4 Put the riser card in.	
Put the riser card in.	
Put the riser card in.	

Step 5 Tighten two screws.	

Chapter 2 Hardware Installation

2.1 Mainboard Specifications

Introduction

ASB-M8771 is a Mini-ITX industrial motherboard developed on the basis of Intel QM77/HM77,which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features dual GbE ports, 6-COM ports and one Mini PCIE configuration. To satisfy the special needs of high-end customers, ADOtec designed 120Pin PCIe x16 and 40Pin PCIe x1expansion interface. The product is widely used in various sectors of industrial control.

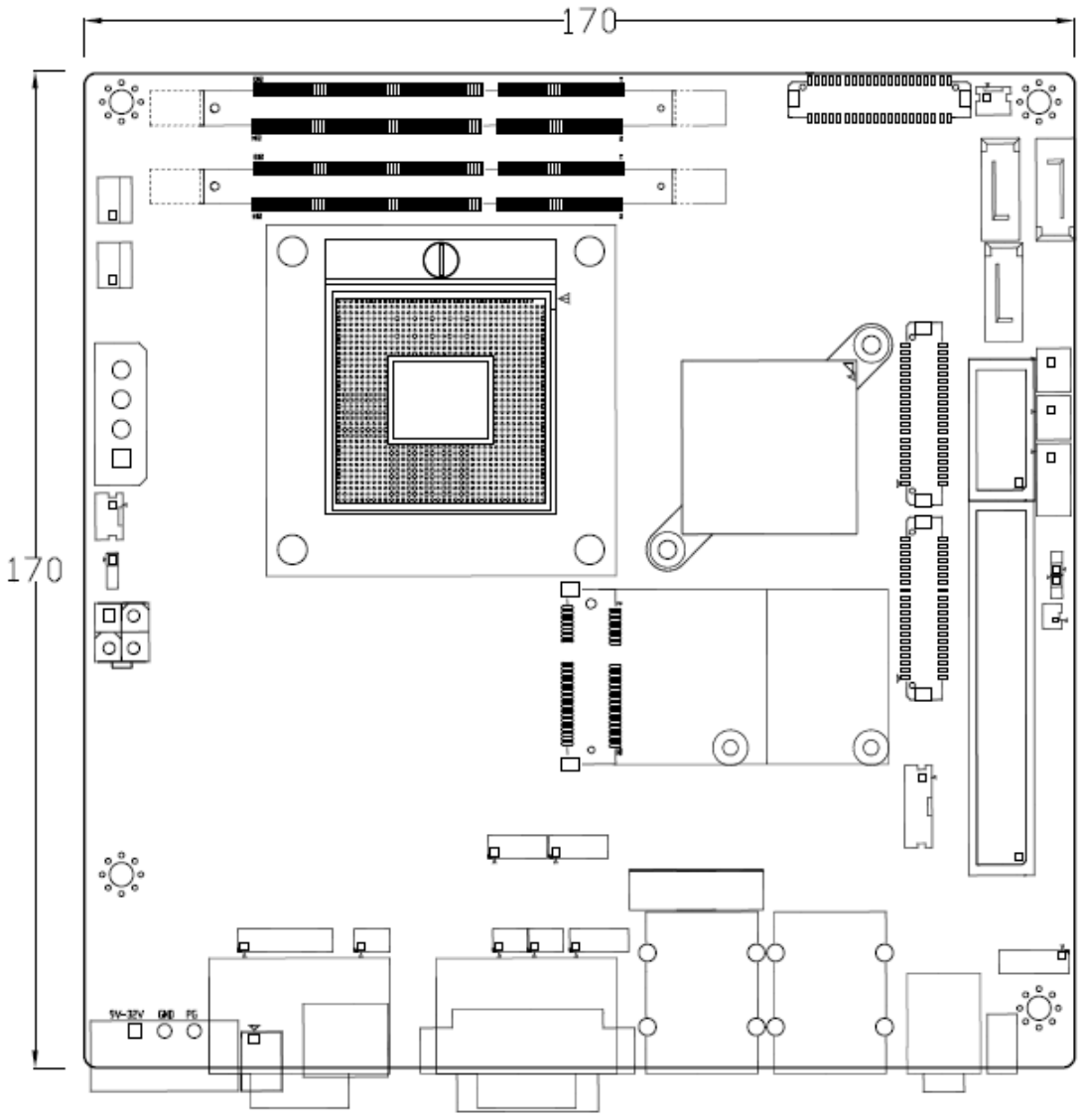


Figure 2.1: Mainboard Dimensions

Specifications	
Board Size	170mm x 170mm
CPU Support	Support Socket G2, 2nd/3rd Gen Intel Core i3/i5/i7 Processors
Chipset	Intel HM77 (ASB-M8771H)
Memory Support	2 x SO-DIMM (204pins), up to 16GB DDRIII 1066/1333/1600MHz FSB
Graphics	Intel HD Graphics 4000
Super I/O	Winbond W83627UHG
BIOS	AMIBIOS 16M
Storage	1 x SATA2.0 Connector (SATA3) 1 x SATA2.0 Connector (SATA4 option) 2 x SATA3.0 Connector (SATA1/SATA2) 1 x CFAST Slot (option) 1 x MSATA Connector (option)
Ethernet	2 x PCIe GbE LAN by Intel 82574L
USB	4 x USB 2.0 stack ports for external 3 x USB 2.0 box Pin header for MIO1 4 x USB 2.0 box Pin header for MIO2 1 x USB 2.0 internal for mini PCIe
Serial	1 x RS232/422/485 port, DB9 connector for external (COM1) pin 9 w/5V/12V/Ring select 1 x RS232 port, DB9 connector for external (COM2) pin 9 w/5V/12V/Ring select 1 x RS232 header for internal (COM5) 1 x RS232 header for internal (COM6), pin 9 w/5V/12V select I/O Card TB-522 (option): 1 x 422/485 select header for internal MIO1 (COM3) 1 x RS232 header for internal MIO1 (COM4) I/O Card TB-523 (option): 1 x 422/485 select header for internal MIO1 (COM3) 1 x RS232/422/485 select header for internal MIO1 (COM4)

Digital I/O	8-bit digital I/O by Pin header by MIO2 4-bit digital Input 4-bit digital Output
Battery	Support CR2477 Li battery by 2-pin header Support CR2032 Li battery(BAT2,option)
Audio	Support Audio via Realtek ALC662 HD audio codec Support Line-out, MIC by JACK1 Support Line-in, Line-out, MIC by 2x6-pin header
Keyboard /Mouse	PS2 K/B and Mouse by MIO2 1 x PS/2 keyboard 1 x PS/2 mouse
Expansion	1 x PCI-express x16 extend by 4x30 pin socket 2 x PCI-express x1 extend by 4x10 pin socket 1 x mini-PCI-express slot 1 x CRT 2x5 Pin Header
Power Management	1 x 3-pin power input connector (Wide range DC+9V~32V) 1 x ATX Power Input （2x2Pin and 3Pin, option） DC5V/12V output by 1x4 pin Connectors
Switches and LED Indicators	Power on/off switch by TB-522 or TB-523 Reset switch by MIO2 Power LED status by MIO2 HDD LED status by MIO2
External I/O port	2 x COM Ports (COM1/COM2) 4 x USB 2.0 Ports (stack) 2 x RJ45 GbE LAN Ports 1 x DVI-I Port 1 x HDMI Port 1 x Audio Ports (Mic, Line out)
Watchdog Timer	Software programmable 1–255 second by Super I/O
Temperature	Operating: -20℃ to 70℃ Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating

Power Consumption	12V/3.80A (Intel i5-2430M 2.4GHz Processor with 4GB DDR3) 19V/2.0A (Intel i5-2540 2.6GHz Processor with 8GB DDR3) 19V/2.2A(Intel i7-2620 2.7GHz Processor with 8GB DDR3)
EMI/EMS	Meet CE/FCC class A

2.2 Jumpers Setting and Connectors

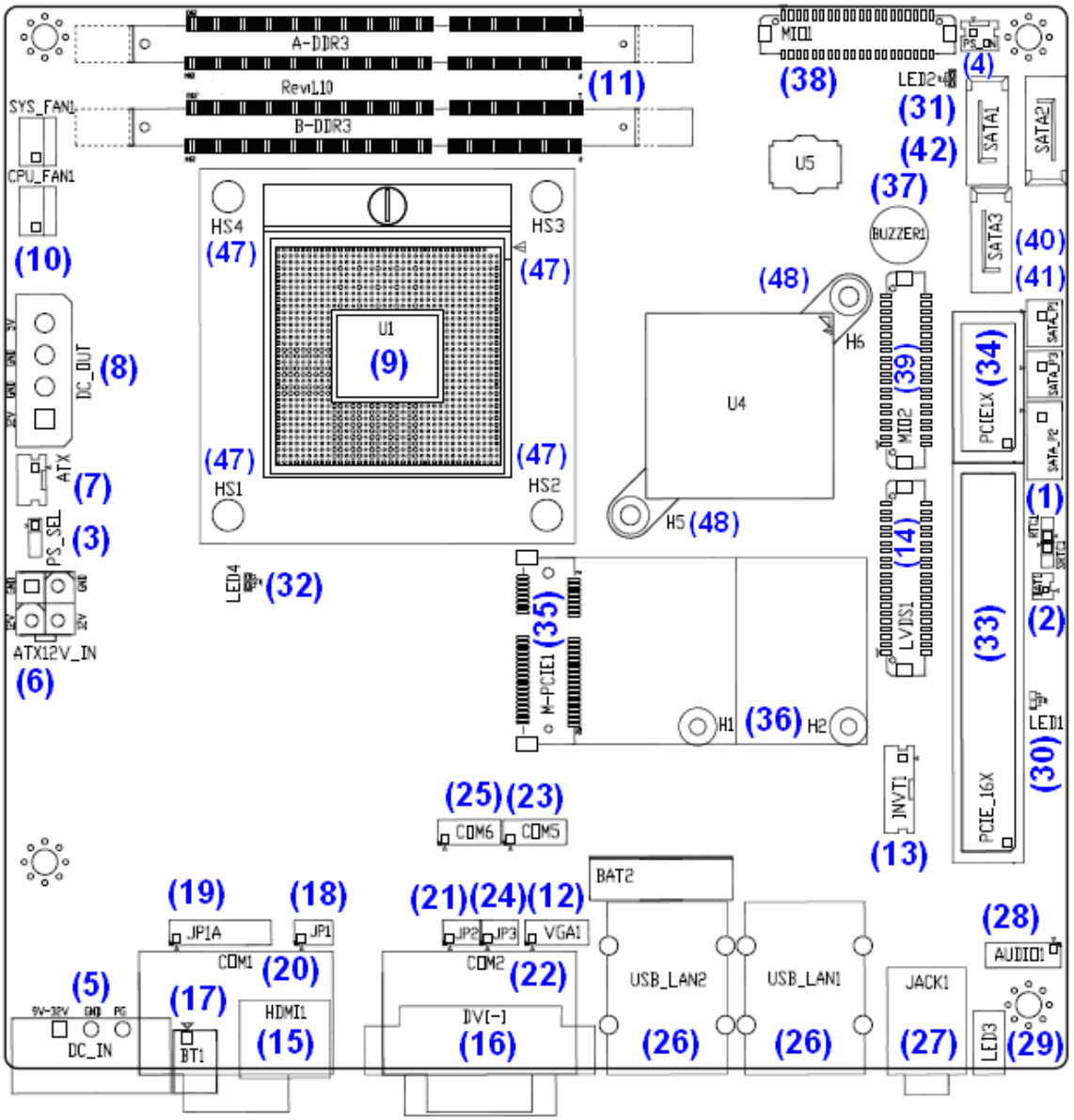


Figure 2.2: Jumpers and Connectors Location-TOP

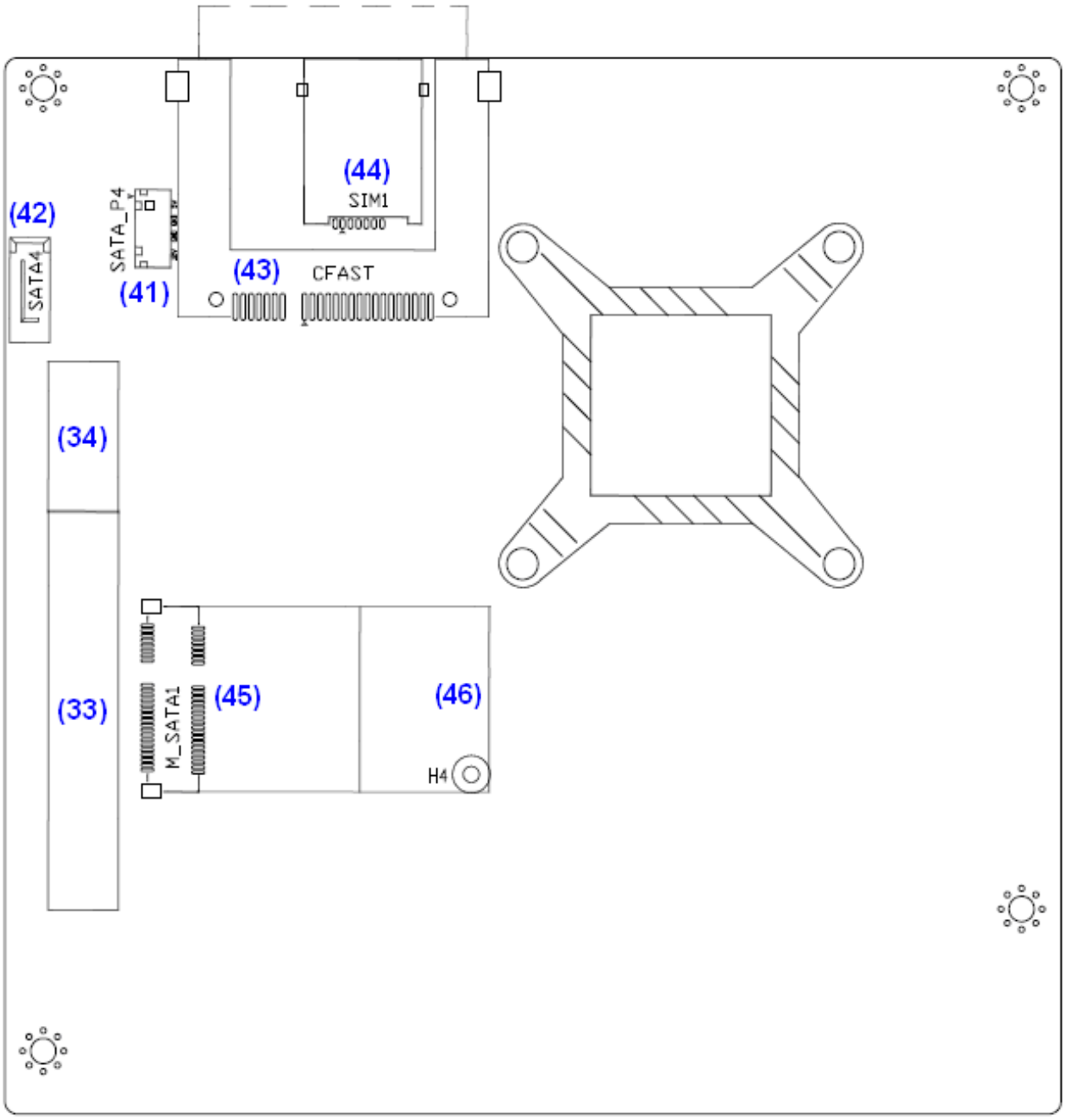


Figure 2.3: Jumpers and Connectors Location- Bottom

1. RTC1/SRTC1:

(2.0mm Pitch 1X2 Pin Header)CMOS clear jumper, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

RTC1/SRTC1	CMOS
Open or （RTC1Pin1-SRTC1 Pin close）	NORMAL (Default)
Close 1-2	Clear CMOS

Procedures of CMOS clear:

a) Turn off the system and unplug the power cord from the power outlet.

b) To clear the CMOS settings, use the jumper cap to close pins1 and 2 for about 3 seconds then reinstall the jumper clip back to pins open.

c) Power on the system again.

d) When entering the POST screen, press the <DEL> key to enter CMOS Setup Utility to load optimal defaults.

e) After the above operations, save changes and exit BIOS Setup.

2. BAT1 :

(1.25mm Pitch 1X2 box Pin Header) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	VBAT
Pin2	Ground

3. PS_SEL:

(2.0mm Pitch 1X3 Pin Header),DC in Power and ATX 12V_IN Power jumper setting**.**

PS_SEL	Mode
Close 1-2	**DC in Power (Default)**
Close 2-3	ATX 12V_IN Power

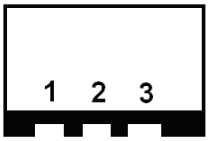
4. PS_ON:

(2.0mm Pitch 1X2 Pin Header),ATX Power and Auto Power on jumper setting**.**

PS_ON	Mode
Close 1-2	**Auto Power on (Default)**
Open 1-2	ATX Power

5. DCIN:

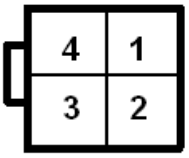
(5.08mm Pitch 1x3 Pin Connector),DC9V ~ DC32V System power input connector。



Pin#	Power Input
Pin1	DC+9V~32V
Pin2	Ground
Pin3	PG

6. ATX12V_IN (ATX Power option):

(2x2 Pin Connector), DC12V System power **input** connector.



Pin#	Power input
Pin1	Ground
Pin2	Ground
Pin3	DC+12V
Pin4	DC+12V

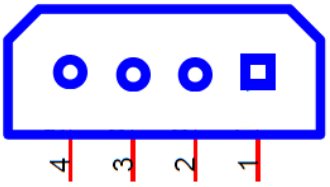
7. ATX (ATX Power option):

(2.0mm Pitch 1X3 box Pin Header), connect PSON and 5VSB and Ground signal,support ATX Power model. **Reserved**.

Pin#	Signal Name
Pin1	ATX PSON
Pin2	ATX Ground
Pin3	ATX 5VSB

8. DC_OUT:

(2x2 Pin Connector),DC12V and DC5V System power **output** connector.



Pin#	Power output

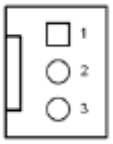
Pin1	DC+12V
Pin2	Ground
Pin3	Ground
Pin4	DC+5V

9. U1:

(Socket G2), installing the 2nd GEN intel Core i3/i5/i7CPU Socket.

10. CPU_FAN1/SYS_FAN1:

(2.54mm Pitch 1x3 Pin Header),Fan connector, cooling fans can be connected directly for use. You may set the rotation condition of cooling fan in menu of BIOS CMOS Setup.



Pin#	Signal Name
1	Ground
2	VCC
3	Rotation detection

Note:

Output power of cooling fan must be limited under 5W.

11. A-DDR3/B-DDR3:

(SO-DIMM 204Pin socket), DDRIII memory socket, the socket is located at the top of the board and supports 204Pin 1.5V DDRIII 1066/1333/1600MHz FSB SO-DIMM memory module up to 16GB.

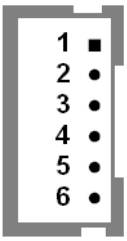
12. VGA1:

(CRT 2.0mm Pitch 2X5 Pin Header), Video Graphic Array Port, Provide 2x5Pin cable to VGA Port.

Signal Name	Pin#	Pin#	Signal Name
CRT_RED	1	2	Ground
CRT_GREEN	3	4	Ground
CRT_BLUE	5	6	Ground
CRT_H_SYNC	7	8	CRT_DDCDATA
CRT_V_SYNC	9	10	CRT_DDCCLK

13. INVT1:

(2.0mm Pitch 1x6 box Pin Header), Backlight control connector for LVDS1.



Pin#	Signal Name
1	+DC12V
2	+DC12V
3	Ground
4	Ground
5	BKLT_EN
6	BKLT_CTRL

Note:
Pin6 is backlight control signal, support DC or PWM mode, mode select at BIOS CMOS menu.

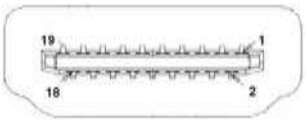
14. LVDS1:

(1.25mm Pitch 2x20 Connector), For 18/24-bit LVDS output connector, Fully supported by Intel QM67 chipset, the interface features dual channel 18/24-bit output.

Signal Name	Pin#	Pin#	Signal Name
VDD5	2	1	VDD5
Ground	4	3	Ground
VDD33	6	5	VDD33
LB_D0_N	8	7	LA_D0_N
LB_D0_P	10	9	LA_D0_P
Ground	12	11	Ground
LB_D1_N	14	13	LA_D1_N
LB_D1_P	16	15	LA_D1_P
Ground	18	17	Ground
LB_D2_N	20	19	LA_D2_N
LB_D2_P	22	21	LA_D2_P
Ground	24	23	Ground
LB_CLK_N	26	25	LA_CLK_N
LB_CLK_P	28	27	LA_CLK_P
Ground	30	29	Ground
LVLVDS_DDC_DATA	32	31	LVDS_DOC_CLK
Ground	34	33	Ground
LB_D3_N	36	35	LA_D3_N
LB_D3_P	38	37	LA_D3_P
NC	40	39	NC

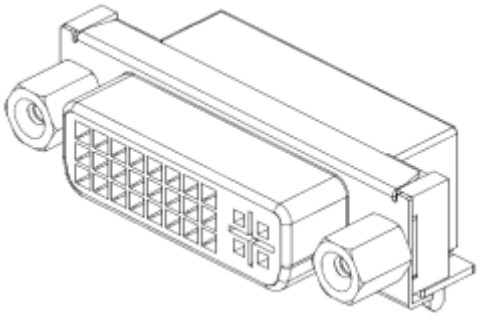
15. HDMI1:

(HDMI 19P Connector), High Definition Multimedia Interface connector.



16. DVI-I:

(DVI-I Connector), Digital Visual Interface-Integrated connector.



17. BT1:

POWER on/off Button, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

18. JP1:

(2.0mm Pitch 2x3 Pin Header),COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP1 Pin#	Function
Close 1-2	**COM1 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM1 Pin9 = +5V (option)
Close 5-6	COM1 Pin9 = +12V (option)

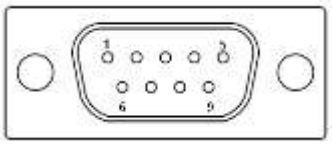
19. JP1A:

(2.0mm Pitch 2x8 Pin Header),COM1 jumper setting, it provides selectable RS232 or RS422 or RS485 serial signal output.

Function	JP1A Pin#
RS232 (Default)	**Close: Pin1-3, Pin2-4, Pin7-9, Pin8-10, Pin13-14**
RS422 (option)	Close: Pin3-5, Pin4-6, Pin9-11, Pin10-12, Pin17-18
RS485 (option)	Close: Pin3-5, Pin4-6, Pin9-11, Pin10-12, Pin15-16

20. COM1:

(Type DB9),Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.



RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP1 select Setting (RI/5V/12V)**

RS422 (option):	
Pin#	Signal Name
1	422_R+
2	422_R-
3	422_T-
4	422_T+
5	Ground
6	NC
7	NC
8	NC
9	NC

RS485 (option):	
Pin#	Signal Name
1	NC
2	NC
3	485-
4	485+
5	Ground
6	NC
7	NC
8	NC
9	NC

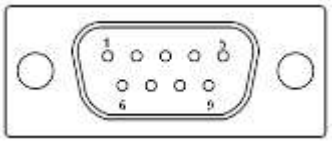
21. JP2:

(2.0mm Pitch 2x3 Pin Header),COM2 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM2 port.

JP2 Pin#	Function
Close 1-2	**COM2 Pin9 RI (Ring Indicator) (default)**
Close 3-4	COM2 Pin9=+5V (option)
Close 5-6	COM2 Pin9=+12V (option)

22. COM2:

(Type DB9),Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.



Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP2 select Setting (RI/5V/12V)**

23. COM5:

(2.0mm Pitch 2X5 Pin Header),COM5 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

24. JP3:

(2.0mm Pitch 1x3 Pin Header) COM6 setting jumper, pin 1~6 are used to select signal out of pin 9 of COM6 port.

JP3 Pin#	Function

Close 1-2	COM6 Pin9 RI (Ring Indicator) (default)	
Close 3-4	COM6 Pin9=+5V	(option)
Close 5-6	COM6 Pin9=+12V	(option)

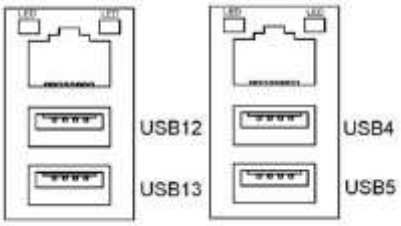
25. COM6:

(2.0mm Pitch 2x5 Pin Header), COM6 Port, standard RS232 ports are provided. They can be used directly via COM cable connection. COM6 port is controlled by pins No.1~6 of JP3,select output Signal 5V or 12v, For details, please refer to description of **JP3**.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP3 select Setting (RI/5V/12V)	9	10	NC

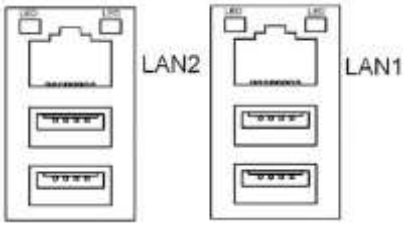
26. USB_LAN1/USB_LAN2:

USB4/USB5/USB12/USB13：(Double stack USB type A), Rear USB connector, it provides up to 4 USB2.0 ports, speed up to 480Mb/s.



Each USB Type A Receptacle (2 Ports) Current limited value is 1.5A.
If the external USB device current exceeds 1.5A, please separate connectors into different Receptacle.

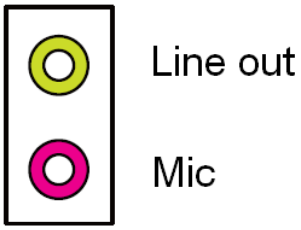
LAN1/LAN2: (RJ45 Connector), Rear LAN port, Two standard 10/100/1000M RJ-45 Ethernet ports are provided. Used Intel 82574L chipset, LINK LED (green) and ACTIVE LED (yellow) respectively located at the left-hand and right-hand side of the Ethernet port indicate the activity and transmission state of LAN.



27. JACK1:

(Diameter 3.5mm Double stack Jack), HD Audio port, An onboard Realtek ALC662 codec is used to provide high quality audio I/O ports. Line Out can be connected to a headphone

or amplifier, MIC is the port for microphone input audio.



28. AUDIO1:

(2.0mm Pitch 2X6 Pin Header), Front Audio, An onboard Realtek ALC662 codec is used to provide high-quality audio I/O ports. Line Out can be connected to a headphone or amplifier. Line In is used for the connection of external audio source via a Line in cable. MIC is the port for microphone input audio.

Signal Name	Pin#	Pin#	Signal Name
SPK_OUTL_P	1	2	SPK_OUTR_P
SPK_OUTL_N	3	4	SPK_OUTR_N
FRONT_JD	5	6	LINE1_JD
LINE_IN_L	7	8	LINE-IN-R
MIC2_IN_L	9	10	MIC2-IN-R
Ground_AUD	11	12	MIC2_JD

29. LED3:

LED STATUS. Green LED for Motherboard Standby Power Good status, Yellow LED for HDD status.

30. LED1:

LED STATUS. Green LED for Motherboard Power status.

31. LED2:

LED STATUS. Green LED for Motherboard Standby Power Good status.

32. LED4:

LED STATUS. Green LED for Motherboard Power status.

33. PCIE_16X (option)**:**

(4x30 Pin), Riser Card expansion connector. Can expand support one PCIeX16 or two PCIeX8 Signal.

ASB-M8771T：PCIE_16X connector in the top.

ASB-M8771B：PCIE_16X connector in the Bottom.

34. PCIE1X (option)**:**

(4x10 Pin),Riser Card expansion connector.Can expand support two PCIe Signal.

ASB-M8771T：PCIE1X connector in the top.

ASB-M8771B：PCIE1X connector in the Bottom.

MODEL	PC1E16X / PCIE1X
ASB-M8771T	Top
ASB-M8771B	Bottom

35. M-PCIE1:

(Socket 52Pin),mini PCIe socket, it is located at the top, it supports mini PCIe devices with USB2.0,SIM,SMBUS and PCIe signal. MPCIe card size is 30x30mm or 30 x
50.95mm.

36. H2/H1(option)**:**

MPCIE1 SCREW HOLES, H1 for mini PCIE card (30mmx30mm) assemble. H2 for mini PCIE card (30mmx50.95mm) assemble.

37. BUZZER1:

Onboard buzzer.

38. MIO1:

(DF13-40P Connector),For expand output connector, It provides two RS232 ports or one RS485 port, three USB ports, one power led, one power button, via a dedicated cable connected **to TB-522 R1.1 MIO1or TB-523 R1.1 MIO1.**

Function	Signal Name	Pin#	Pin#	Signal Name	Function
COM3 RS422 or RS485	485+ / 422TX+	2	1	422RX+	COM3
	485- / 422TX-	4	3	422RX-	
	3P3V_S0	6	5	Ground	
	WAN_LED-	8	7	NC	
	5V_S5	10	9	5V_S5	
COM4	RXD4	12	11	DCD4-	COM4
	DTR4-	14	13	TXD4	
	DSR4-	16	15	Ground	
	CTS4-	18	17	RTS4-	
	5V_S5	20	19	RI4-	
USB10	5V_USB1011	22	21	5V_S5	USB9
	USB10_N	24	23	USB9_N	
	USB10_P	26	25	USB9_P	
	Ground	28	27	Ground	
	Ground	30	29	Ground	
Power LED	PWR_LED+	32	31	5V_USB1011	USB11
	PWR_LED-	34	33	USB11_N	
Power Button	MIO_PSON	36	35	USB11_P	
	Ground	38	37	Ground	
Power Auto on	AUTO_PSON-	40	39	NC	

39. MIO2:

(DF13-40P Connector),Front panel connector.

Function	Signal Name	Pin#	Pin#	Signal Name	Function
P_LED+	PWR-LED	2	1	HDD_LED	H_LED+
P_LED-	Ground	4	3	USB01_OC-	
PSON+	MIO_PSON-	6	5	USB23_OC-	
PSON-	Ground	8	7	RESET-	RESET
BUZZER-	BUZZER-	10	9	BUZZER+	BUZZER
GPIO_OUT1	PCH_GPIO68	12	11	PCH_GPIO12	GPIO_IN1
GPIO_OUT2	PCH_GPIO69	14	13	PCH_GPIO15	GPIO_IN2
GPIO_OUT3	PCH_GPIO70	16	15	PCH_GPIO58	GPIO_IN3
GPIO_OUT4	PCH_GPIO71	18	17	PCH_GPIO75	GPIO_IN4
PS2_Mouse	5V_S5_USB	20	19	Ground	PS2_K/B
	PS2_MSDATA	22	21	PS2_KBDATA	
	PS2_MSCLK	24	23	PS2_KBCLK	
USB3	5V_S5_USB	26	25	5V_S5_USB	USB2
	USB3_N	28	27	USB2_N	
	USB3_P	30	29	USB2_P	
	Ground	32	31	Ground	
USB1	5V_S5_USB	34	33	5V_S5_USB	USB0
	USB1_N	36	35	USB0_N	
	USB1_P	38	37	USB0_P	
	Ground	40	39	Ground	

Pin1- Ground: **HDD LED**, They are used to connect hard disk activity LED. The LED blinks when the hard disk is reading or writing data.

Pin2- Pin4: **POWER LED**, They are used to connect power LED. When the system is powered on or under S0/S1 state, the LED is normally on, when the system is under S4/S5 state, the LED is off.

Pin3: **USB01 OC-**, “USB01_OC-“ Signal.

Pin5: **USB23 OC-**,“USB23_OC-“ Signal.

Pin7- Ground: **RESET Button**, They are used to connect reset button. The two pins are disconnected under normal condition. You may short them temporarily to realize system reset.

Pin6- Pin8: **POWER on/off Button**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

Pin9- Pin10: **BUZZER**, They are used to connect an external buzzer.

Pin11~Pin18: **GPIO IN/GPIO OUT,** General-purpose input/output port, it provides a group of self-programming interfaces to customers for flexible use.

Pin19~Pin24: **PS2 KB/MS,** PS/2 keyboard and mouse port, the port can be connected to PS/2 keyboard and mouse via a dedicated cable for direct used.

Pin25~40: **USB0/USB1/USB2/USB3**, Front USB connector, it provides 4 USB ports via a dedicated USB cable, speed up to 480Mb/s.

Note:

When connecting LEDs and buzzer and GPIO and USB, pay special attention to the signal polarity. Make sure that the connector pins have a one-to-one correspondence with chassis wiring, or it may cause boot up failure.

40. SATA_P1/SATA_P3:

(2.5mm Pitch 1x2 box Pin Header), Two onboard 5V output connectors are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V
2	Ground

Note:

Output current of the connector must not be above 1A.

41. SATA_P2/SATA_P4:

(2.5mm Pitch 1x4 box Pin Header), Two onboard 5V and 12V output connectors are reserved to provide power for SATA devices.

SATA_P2 (2Pin or 4Pin)	
Pin#	Signal Name
1	+DC5V
2	Ground
3	Ground (NC)
4	+DC12V (NC)
SATA_P4 (option):	
Pin#	Signal Name
1	+DC5V （NC）
2	Ground （NC）
3	Ground （NC）
4	+DC12V （NC）

Note:

Output current of the connector must not be above 1A.

42. SATA1/SATA2/SATA3/SATA4:

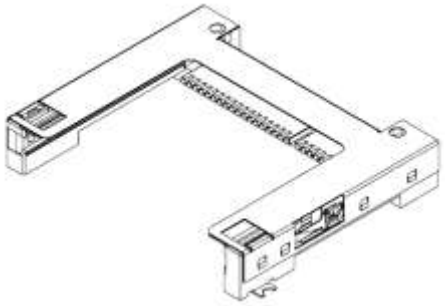
(SATA 7P), SATA Connectors, Four SATA connectors are provided,SATA3 and SATA4 transfer speed up to 3.0Gb/s, SATA1 and SATA2 transfer speed up to 6.0Gb/s.

RAID controller supporting RAID 0/1/5/10.

Position	Function	Color
SATA1	SATA3.0	White or Blue
SATA2	SATA3.0	White or Blue
SATA3	SATA2.0	black
SATA4	SATA2.0	black（NC）

43. CFAST (option):

(CFAST Card socket), it is located at the bottom of the board and serves as an insert interface for CFAST card.



44. SIM1 (option):

(SIM Socket 7Pin), Support SIM Card devices.

45. M_SATA1 (option):

(50.95mmx30mm Socket 52Pin), mSATA socket, it is located at the top, it supports mini PCI-e devices with LPC bus, **B2 mSATA bus** for flash disk signal.

46. H3/H4 (option):

M_SATA1 SCREW HOLES.

H3 and H4 for mini MSATA card (50.95mmx30mm Socket 52 Pin) assemble.

47. HS1/HS2/HS3/HS4(CPU SCREW HOLES):

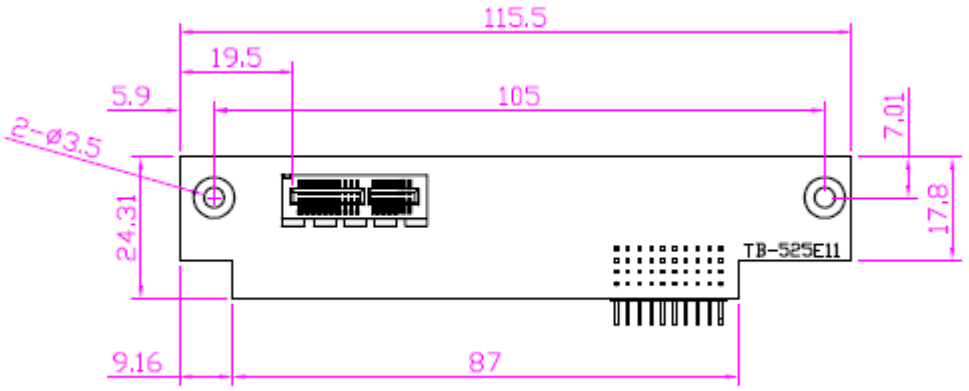
CPU FAN SCREW HOLES, Four screw holes for fixed CPU Cooler assemble.

48. H5/H6:

U4 SCREW HOLES.

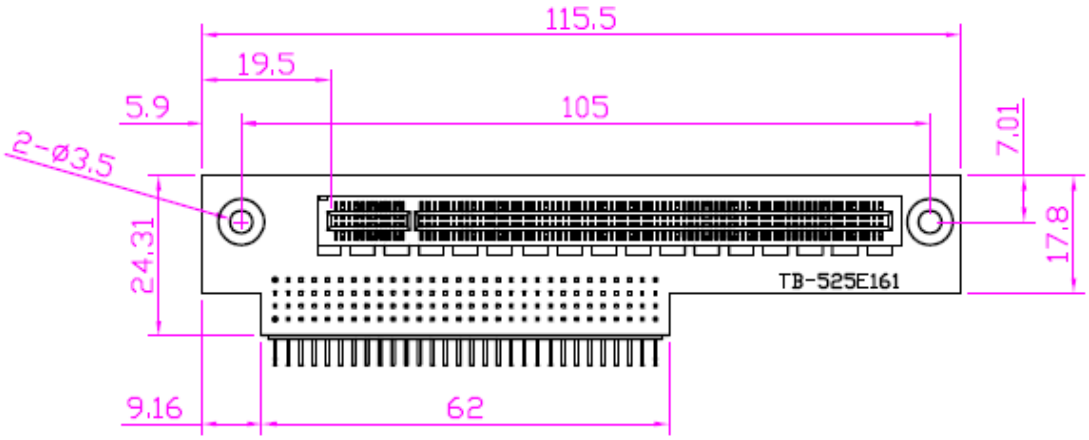
49. TB-525E11:

TB-525E11 connect to ASB-M8771T PCIE1X connector**,** PCIE1X is located at the top,It provides one PCIE X1 slot.



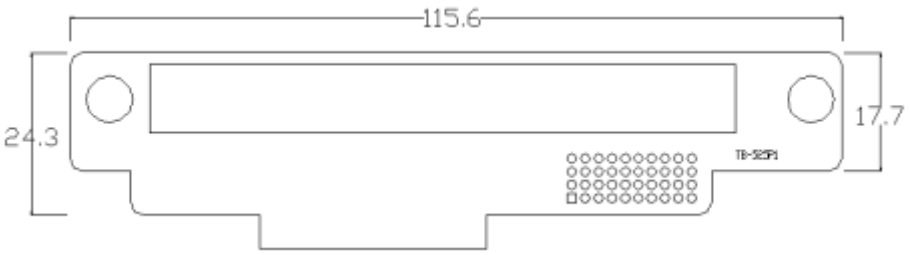
50. TB-525E161:

TB-525E161 connect to ASB-M8771T PCIE_16X connector**,** PCIE_16X is located at the top,It provides one PCIE X16 slot.



51. TB-525P1:

TB-525P1 connect to ASB-M8771T PCIE1X connector**,** PCIE1X is located at the top,It provides one PCI slot.



Chapter 3 BIOS Setup

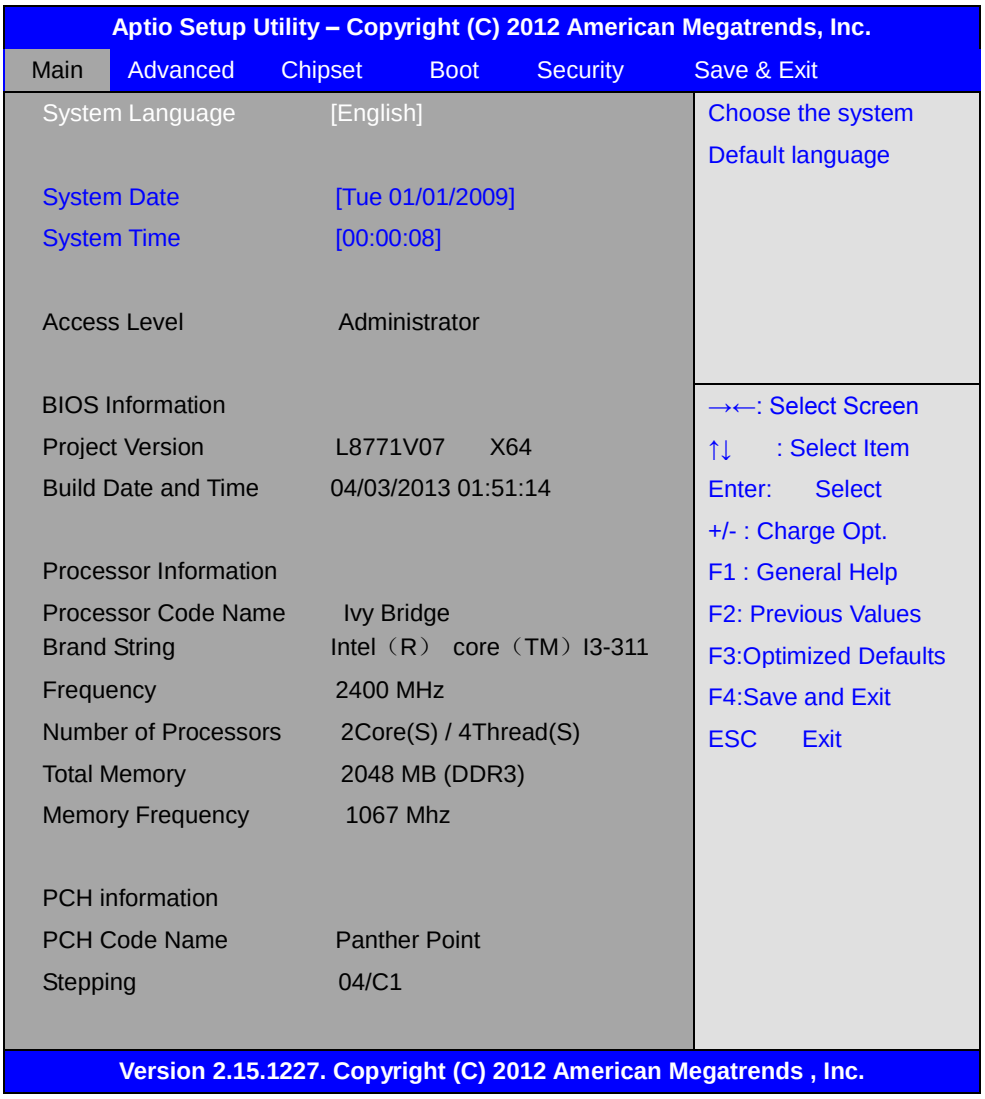
3.1 Operations after POST Screen

After CMOS discharge or BIOS flashing operation,.Press [Delete] key to enter CMOS Setup.

After optimizing and exiting CMOS Setup, the POST screen displayed for the first time is as follows and includes basic information on BIOS, CPU, memory, and storage devices.

3.2 BIOS SETUP UTILITY

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.



3.3 Main Settings

System Time:

Set the system time, the time format is:

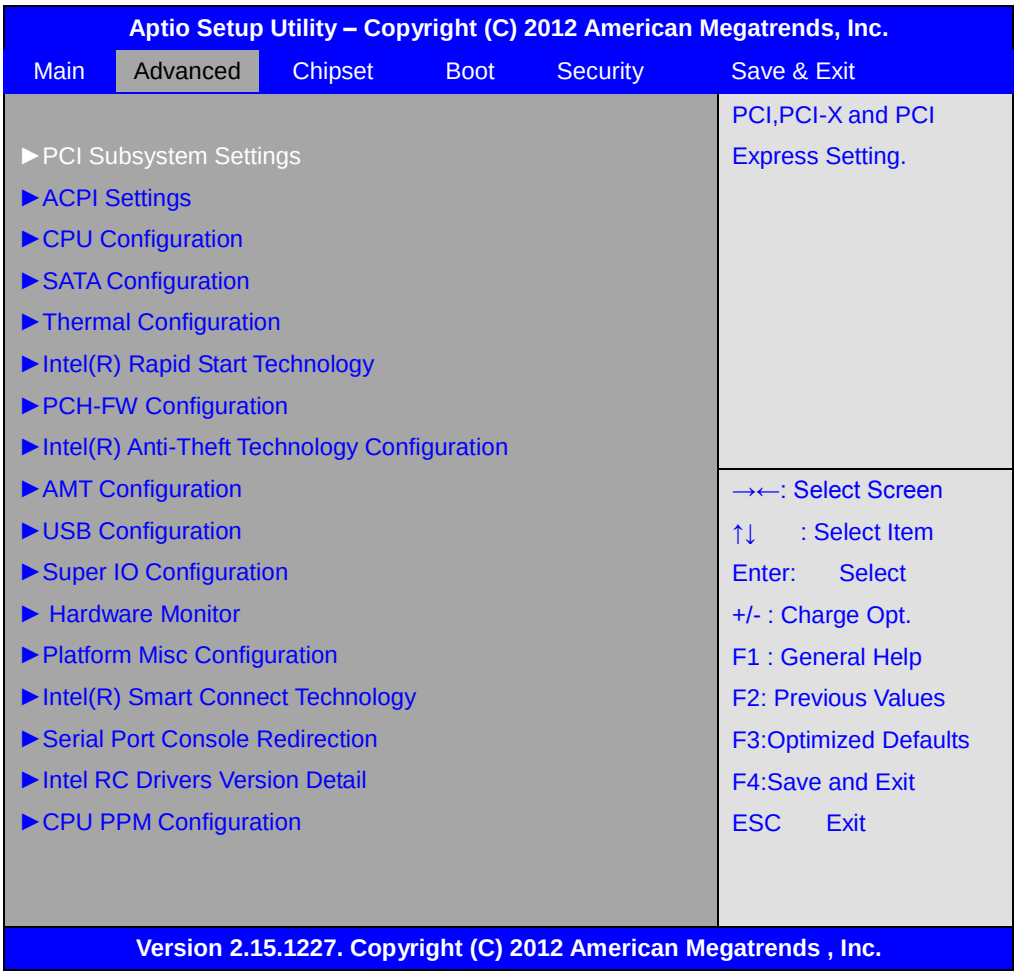
Hour : 0 to 23
Minute : 0 to 59
Second : 0 to 59

System Date:

Set the system date, the date format is:

Day: Note that the 'Day' automatically changes when you set the date.
Month: 01 to 12
Date: 01 to 31
Year: 1998 to 2099

3.4 Advanced Settings



3.4.1 PCI Subsystem Settings

PCI Bus Driver Versio V2.05.02

PCI 64bit Resources Handling:

Above 4G Decoding

[Disabled]

[Enabled]

PCI Common Settings:

PCI Latency Timer:

[32 PCI Bus Clocks]

[64 PCI Bus Clocks]

[96 PCI Bus Clocks]

[128 PCI Bus Clocks]

[160 PCI Bus Clocks]

[192 PCI Bus Clocks]

[224 PCI Bus Clocks]

[248 PCI Bus Clocks]

VGA Palette snoop:

[Disabled]
[Enabled]

PERR# Generation:

[Disabled]
[Enabled]

SERR# Generation:

[Disabled]
[Enabled]

PCI Express Device Settings：

3.4.2 ACPI Settings

Enable ACPI Auto Configuration:

[Disabled]
[Enabled]

Enable Hibernation:

[Enabled]
[Disabled]

ACPI Sleep State:

[Both S1 and S3 avai…]
[Suspend Disabled]
[S1 only (CPU Stop clock)]
[S3 only (Suspend to RAM]

Lock Legacy Resources:

[Disabled]
[Enabled]

S3 Video Repost:

[Disabled]
[Enabled]

3.4.3 CPU Configuration

Socket 0 CPU Information:

Intel(R) Core(TM) i3-3110M CPU @2.40GHz

CPU Signature	306a9
Microcode Patch	13
Max CPU Speed	2400 MHz
Min CPU Speed	1200Mhz
CPU Speed	2400 MHz
Processor Cores	2
Intel HT Technology	Supported
Intel VT-x Technology	Supported
Intel SMX Technology	Not Supported
64-bit	Supported

Hyper-threaading

[Enabled]

[Disabled]

Active Processor Cores

[All]

[1]

Limit CPUID Maximum:

[Disabled]

[Enabled]

Execute Disable Bit:

[Enabled]

[Disabled]

Intel Virtualization Technology

[Enabled]

[Disabled]

Hardware Prefetcher

[Enabled]

[Disabled]

Adjacent Cache Line Prefetch

[Enabled]

[Disabled]

3.4.4 SATA Configuration

SATA Controller(S):

[Enabled]

[Disabled]

SATA Mode Selection:

[IDE]

[AHCI]

[RAID]

SATA Test Mode:

[Disabled]

[Enabled]

ISRT Support

[Enabled]

[Disabled]

IDE legacy / Native Mode Selection
[Native]
[Legacy]

Serial ATA Port 0 Empty
Software Preserve Unknown

Serial ATA Port 1 Empty
Software Preserve Unknown

Serial ATA Port 2 Empty
Software Preserve Unknown

Serial ATA Port 3 Empty
Software Preserve Unknown

Serial ATA Port 4 Empty
Software Preserve Unknown

Serial ATA Port 5 Empty
Software Preserve Unknown

3.4.5 Thermal Configuration

Platform Thermal Configuration

3.4.6 Intel(R) Rapid Start Technology

Intel(R) Rapid Start Technology [Disabled]

3.4.7 PCH-FW Configuration

ME FW Version N/A
ME Firmware Mode N/A
ME Firmware Type Full Sku Firmware
ME Firmware SKU N/A
MDES BIOS Status Code
[Disabled]
[Enabled]
Firmware Update Configuration

3.4.8 Intel(R) Anti-Theft Technology Configuration

3.4.9 AMT Configuration

3.4.10 USB Configuration

USB Configuration
USB Devices:

1 keyboard, 2 Hubs

Legacy USB Support:
[Enabled]
[Disabled]
EHCI Hand-off:
[Disabled]
[Enabled]
Port 60/64 Emulation
[Enabled]
[Disabled]

USB hardware delays and time-outs:
USB transfer time-out:
[20 sec]
[10 sec]
[5 sec]
[1 sec]
Device reset time-out:
[20 sec]
[10 sec]
[30 sec]
[40 sec]
Device power-up delay
[Auto]
[Manual]

3.4.11 Super IO Configuration

Super IO Configuration

Serial Port 1 Configuration
Serial Port 2 Configuration
Serial Port 3 Configuration
Serial Port 4 Configuration
Serial Port 5 Configuration
Serial Port 6 Configuration

3.4.12 Hardware Monitor

PC Health Status

System temperature : +43 C CPU temperature : +60 C System Fan Speed : N/A
CPU Fan Speed : 6490 RPM
VCORE : +0.816V

+12V : +12.160 V
+3.3V : +3.296 V
+1.5V : +1.520 V
AVCC : +5.158 V

3.4.13 Platform Misc Configuration

3.4.14 Intel(R) Smart Connect Technology

3.4.15 Serial Port Console Redirection

3.4.16 Intel RC Drivers Version Detail

3.4.17 CPU PPM Configuration

CPU PPM Configuration

EIST

[Enabled]
[Disabled]

CPU C3 Report

[Enabled]
[Disabled]

CPU C6 report

[Enabled]
[Disabled]

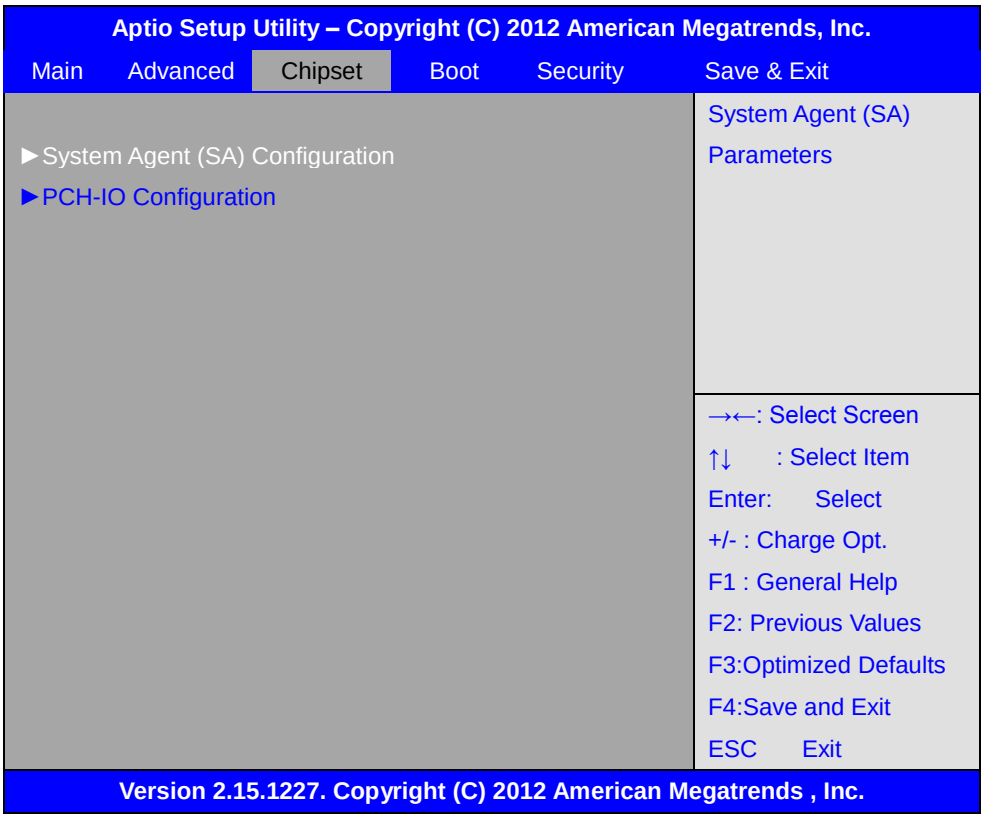
CPU C7 report

[Enabled]
[Disabled]

Long duration power limit 0
Long duration maintained 0
Short duration power limit 0
ACPI T State

[Disabled]
[Enabled]

3.5 Chipset Settings



3.5.1 ► System Agent (SA) Configuration
►PCH-IO Configuration

System Agent (SA) Configuration

System Agent Bridge Name IvyBridge
System Agent RC Version 1.6.0.0
VT-d Capability Unsupported

►Graphics Configuration
IGFX VBIOS Version 2158
IGFX Frequency 350 MHz

Primary Display
[Auto]
[IGFX]
[PEG]
[PCI]

Internal Graphics
[Auto]
[Disabled]

[Enabled]

GTT Size

[2MB]
[1MB]

Aperture Size

[256MB]
[128MB]
[512MB]

DVMT Pre-allocated

[64MB]
[32MB]
[96MB]
[128MB]
[160MB]
[192MB]
[224MB]
[256MB]
[288MB]
[320MB]
[352MB]
[384MB]
[416MB]
[448MB]
[480MB]
[512MB]
[1024MB]

Dvmt Total Gfx Mem

[256MB]
[128MB]
[MAX]

GFX Low Power Mode

[Enabled]
[Disabled]

Primary IGFX Boot Display

[VBIOS Default]
[VGA]
[DVI]
[LVDS]

LCD Panel Type

[1280 X 1024 24bit 2ch]
[640 X 480 18bit 1ch]
[800 X 480 18bit 1ch]
[800 X 600 18bit 1ch]

[800 X 600 24bit 1ch]
[1024 X 768 18bit 1ch]
[1024 X 768 24bit 1ch]
[1280 X 800 18bit 1ch]
[1366 X 768 18bit 1ch]
[1440 X 900 24bit 2ch]
[1600 X 900 24bit 2ch]
[1600 X 1200 24bit 2ch]
[1680 X 1050 24bit 2ch]
[16800 X 1050 24bit 2ch]
[1920 X 1080 24bit 2ch]
[2048 X 1536 24bit 2ch]

Panel Scaling

[Auto]
[Off]
[Force Scaling]

Backlight Control

[DC]
[PWM]

Backlight Logic

[Positive]
[Negaive]

Backlight Control Control Level

[Level 8]
[Level 0]
[Level 1]
[Level 2]
[Level 3]
[Level 4]
[Level 5]
[Level 6]
[Level 7]
[Level 9]
[Level 10]
[Level 11]
[Level 12]
[Level 13]
[Level 14]
[Level 15]

►DMI Configuration
►NB PCIe Configuration

PEG0 [Not Present]

PEG0 – Gen X [Auto]
[Gen1]
[Gen2]
[Gen3]

PEG ASPM
[Auto]
[Disabled]
[Auto]
[ASPM LOs]
[ASPM L1]
[ASPM LOsL1]

De-emphasis Control
[-3.5 dB]
[-6 dB]

►Memory Configuration

Memory RC Version
1.6.6.0

Memory Frequency
1067 Mhz

Total Memory
2048 MB (DDR3) DIMM#0
2048 MB (DDR3) DIMM#2
Not Present

CAS Latency (tCL)
7

Minimum delay time
CAS to RAS (tRPmin) 7
Row Precharge (tRPmin) 7
Active to Precharge (tRPmin) 20

►GT-Power Management Control

GT Info GT2 (0X116)

RC6 (Render Standby)
[Enabled]
[Disabled]

GT overClocking Support
[Disabled]
[Enabled]

►PCH-IO Configuration

Intel PCH RC Version 1.6.6.0
Intel PCH SKU Name QM77
Intel PCH Rev ID 04/C1

PCH LAN Controller
[Disabled]

[Enabled]

Wark on LAN

[Enabled]
[Disabled]

Board Capability

[SUS_PWR_DN_ACK]
[Deepsx]

SLP_S4 Assertion Width

[4-5 Seconds]
[1-2 Seconds]
[2-3 Seconds]
[3-4 Seconds]

Restore AC Power Loss

[Power off]

Set NAND Management Override

[Enabled]
[Disabled]

►PCI Express Configuration

PCI Express Clock Gating

[Enabled]
[Disabled]

DMI Link ASPM Control

[LOSL1]
[LOS]
[Disabled]

DMI Link Extended Synch Control

[Disabled]
[Enabled]

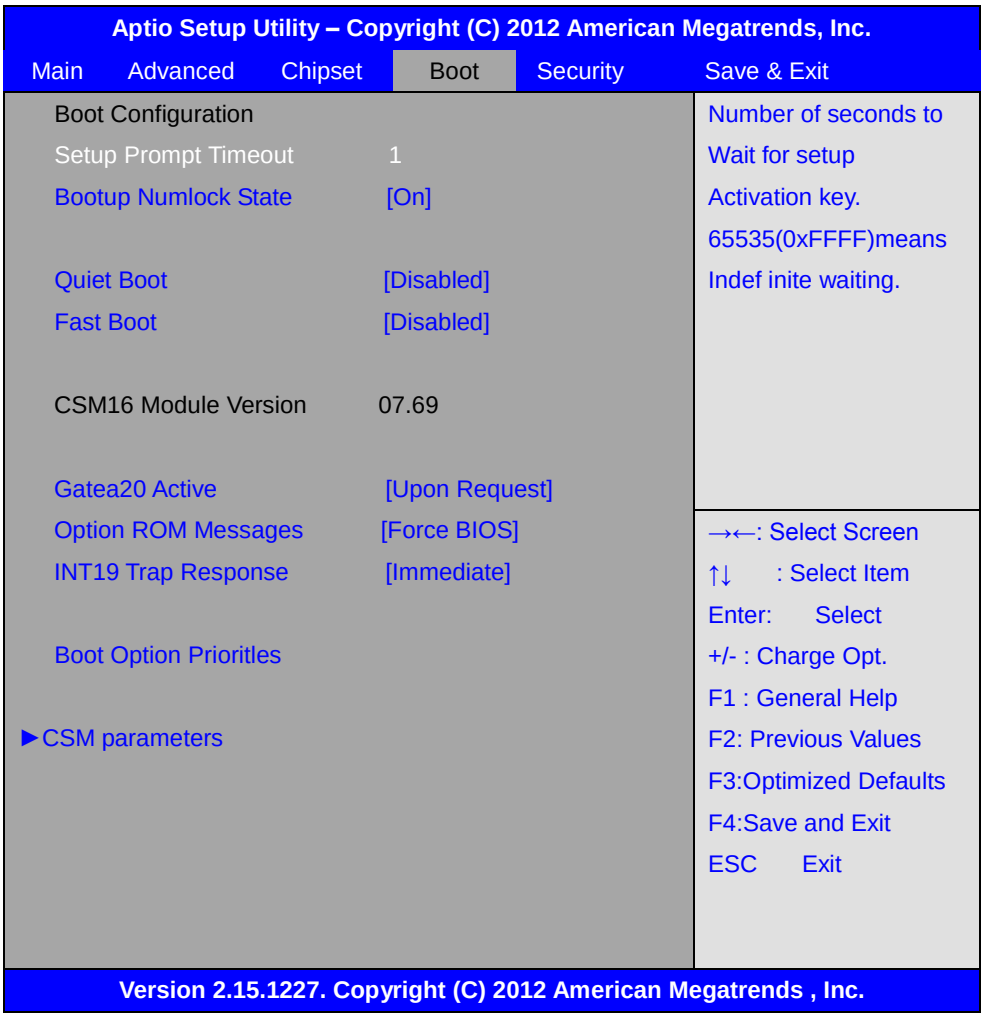
Subtractive Decode

[Disabled]
[Enabled]

►PCI Express Root Port 1
►PCI Express Root Port 2
►PCI Express Root Port 3
►PCI Express Root Port 4
►PCI Express Root Port 5
►PCI Express Root Port 6
►PCI Express Root Port 7
►PCI Express Root Port 8

►USB Configuration
►PCH Azalia Configuration
►BIOS Security Configuration

3.6 Boot Settings



Setup Prompt Timeout [1]

Bootup Numlock State

[On]

[off]

Quiet Boot

[Disabled]

[Enabled]

Fast Boot

[Disabled]

[Enabled]

CSM16 Module Verison 07.69

Gatea20 Active

[Upon Request]

[Always]

Option ROM Messages

[Force BIOS]

[Keep Current]

Interrupt 19 Capture

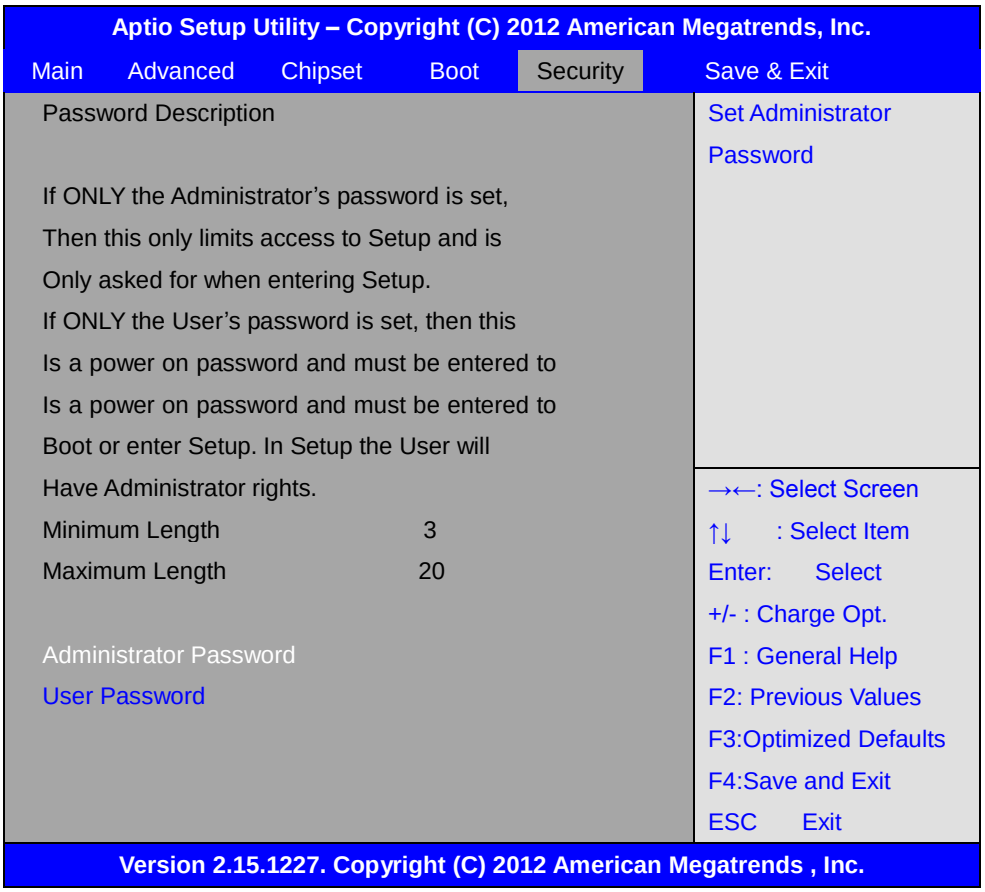
[Immediate]

[Postponed]

Boot Option Priorities

►**CSM parameters**

3.7 Security Settings



3.7.1 Administrator Password

3.7.2 User Password

Type the password with up to 20 characters and then press ≺Enter≻ key. This will clear all previously typed CMOS passwords. You will be requested to confirm the password. Type the password again and press ≺Enter≻ key. You may press ≺Esc≻ key to abandon password entry operation.

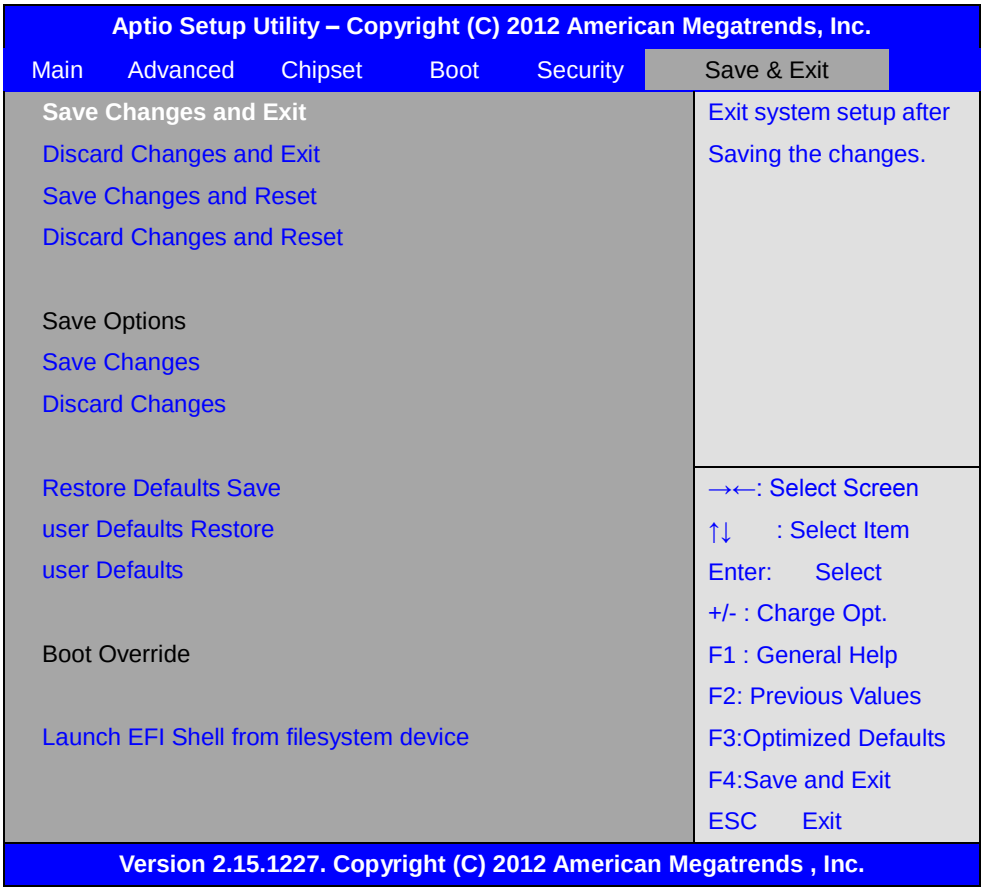
To clear the password, just press ≺Enter≻ key when password input window pops up.

A confirmation message will be shown on the screen as to whether the password will be disabled. You will have direct access to BIOS setup without typing any password after system reboot once the password is disabled.

Once the password feature is used, you will be requested to type the password each time you enter BIOS setup. This will prevent unauthorized persons from changing your system configurations.

Also, the feature is capable of requesting users to enter the password prior to system boot to control unauthorized access to your computer. Users may enable the feature in Security Option of Advanced BIOS Features. If Security Option is set to System, you will be requested to enter the password before system boot and when entering BIOS setup; if Security Option is set to Setup, you will be requested for password for entering BIOS setup.

3.8 Save & Exit Settings



Save Changes and Exit

Save & Exit Setup save Configuration and exit ?

[Yes]

[No]

Discard Changes and Ext

Exit Without Saving Quit without saving?

[Yes]

[No]

Save Changes and Reset

Save & reset Save Configuration and reset?

[Yes]

[No]

Discard Changes and Reset

Reset Without Saving Reset without saving?

[Yes]

[No]

Save Changes

Save Setup Values Save configuration?

[Yes]

[No]

Discard Changes

Load Previous Values Load Previous Values?

[Yes]

[No]

Restore Defaults

Load Optimized Defaults Load optimized Defaults?

[Yes]

[No]

Save user Defaults

Save Values as User Defaults Save configuration?

[Yes]

[No]

Restore user Defaults

Restore User Defaults Restore User Defaults?

[Yes]

[No]

Launch EFI Shell from filesystem device

WARNING Not Found

[ok]

Chapter 4 Installation of Drivers

Important Note:
After installing your Windows operating system (Windows XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

I

4.1 Intel Chipset Driver

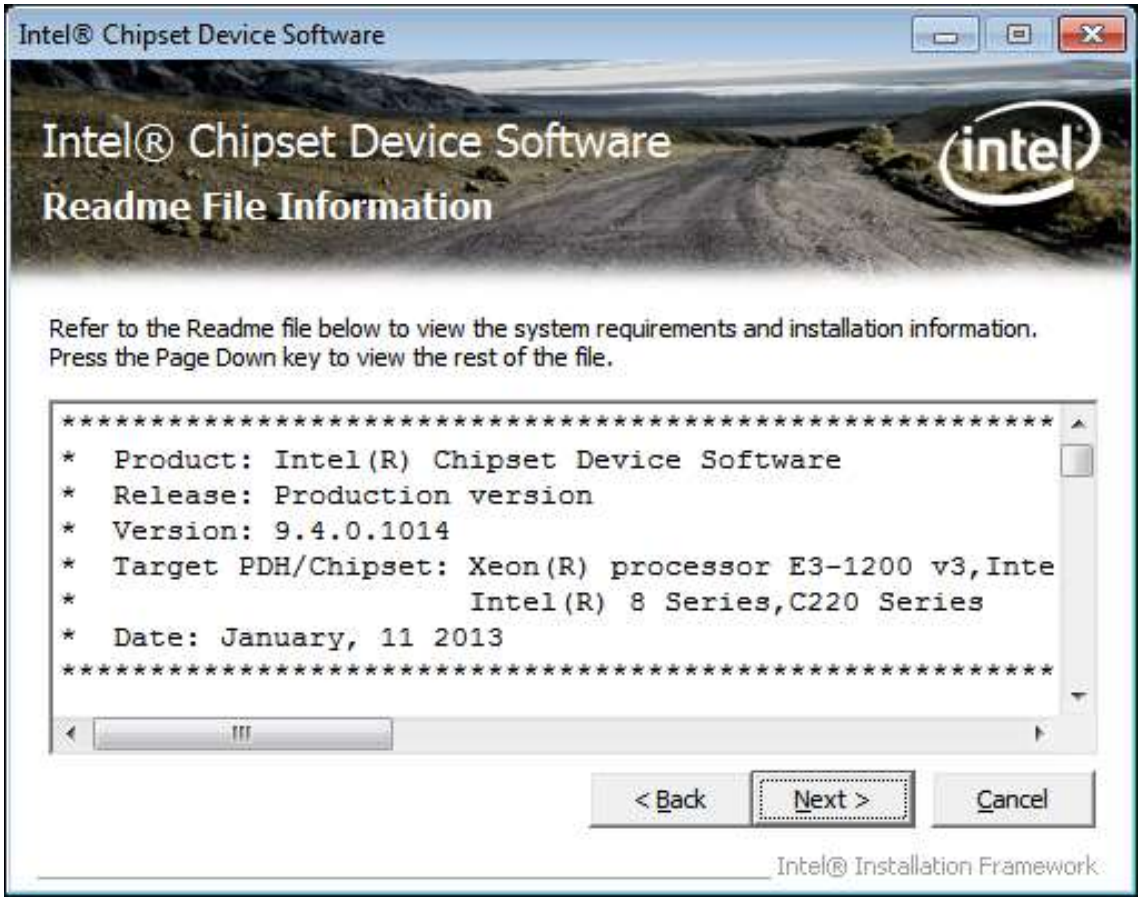
To install the Intel chipset driver, please follow the steps below.

Step 1. Access Industrial Panel PC. Select **Intel QM77&HM77 Chipset Driver**.

Step 2. Click **Next** to setup program.

Step 3. Read the license agreement. Click **Yes** to accept the terms of the license agreement.

Step 4. Click **Next** to continue.



Step 5. Click **Next**.

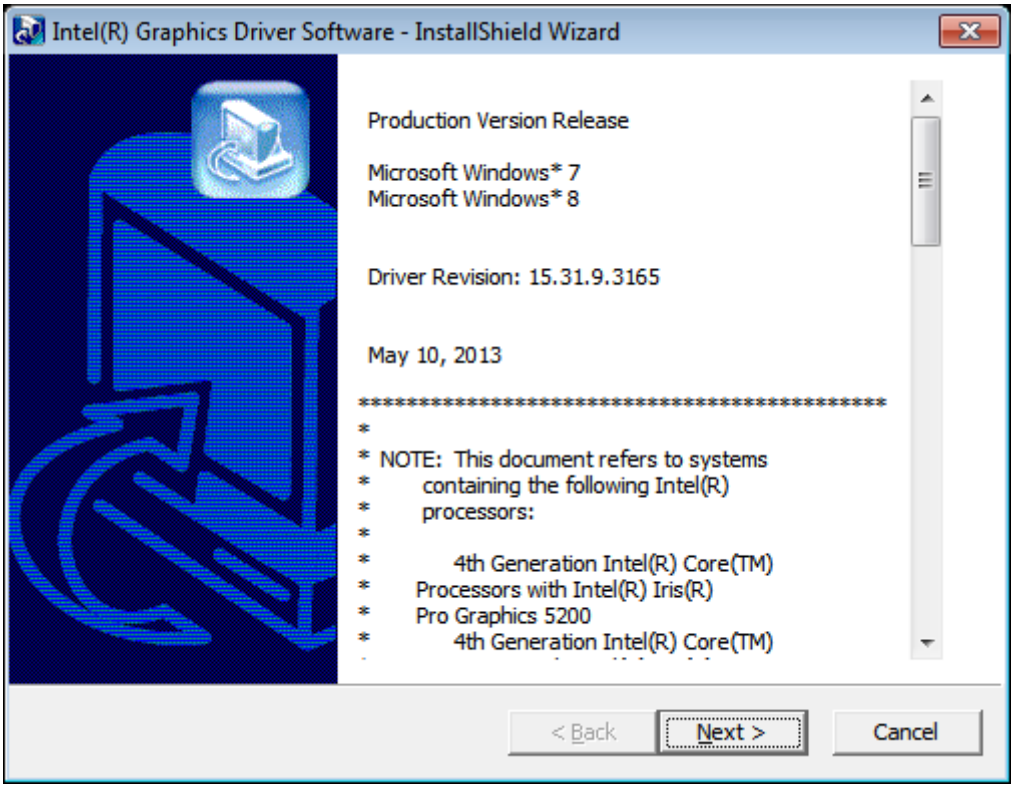
Step 6. Select **Yes, I want to restart this computer now.** Click **Finish** then remove any installation media from the drives.

4.2 Intel (R) VGA Chipset Driver

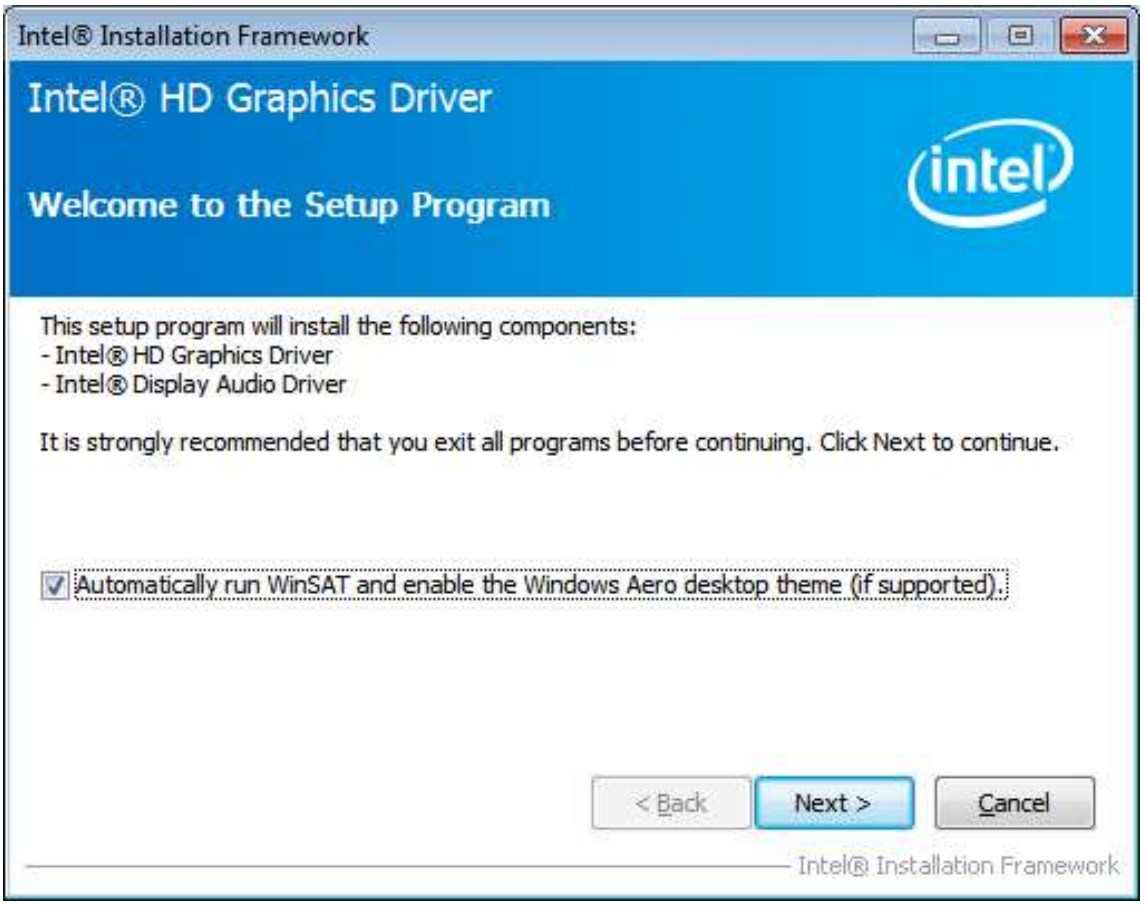
To install the VGA drivers, follow the steps below to proceed with the installation.

Step 1. Select **Intel(R) VGA Chipset Driver.**

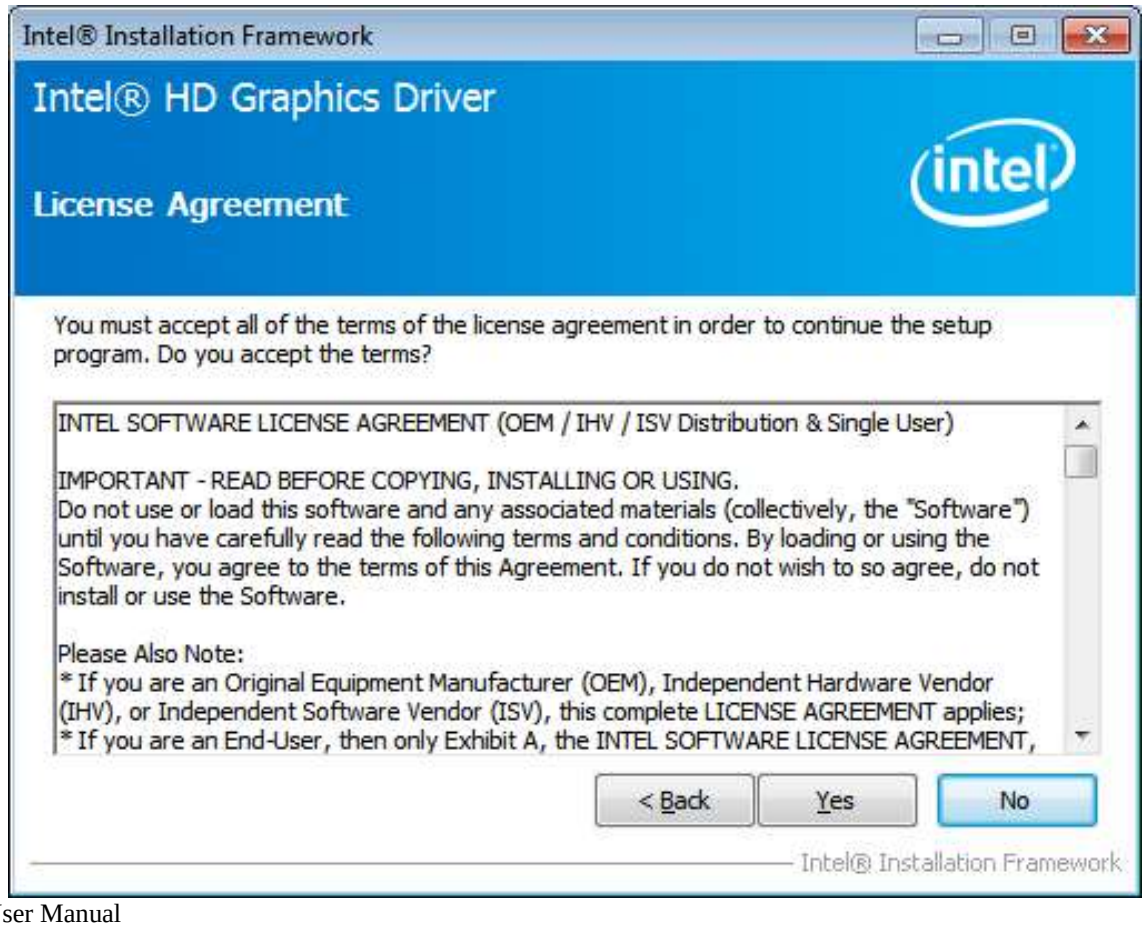
Step 2. Click **Next** to continue setup program.



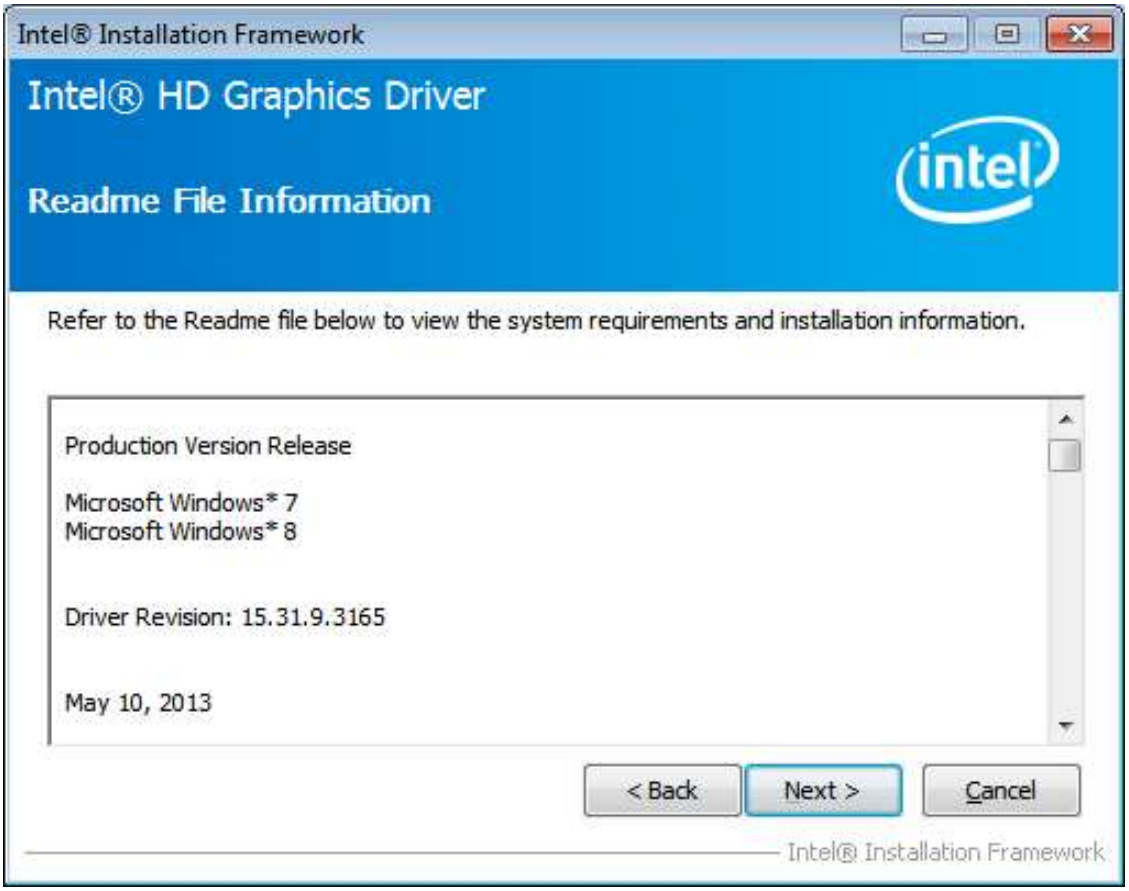
Step 3. Check **Automatically run WinSAT and enable the Windows Aero desktop theme (if supported.)** Click **Next** to continue setup program.



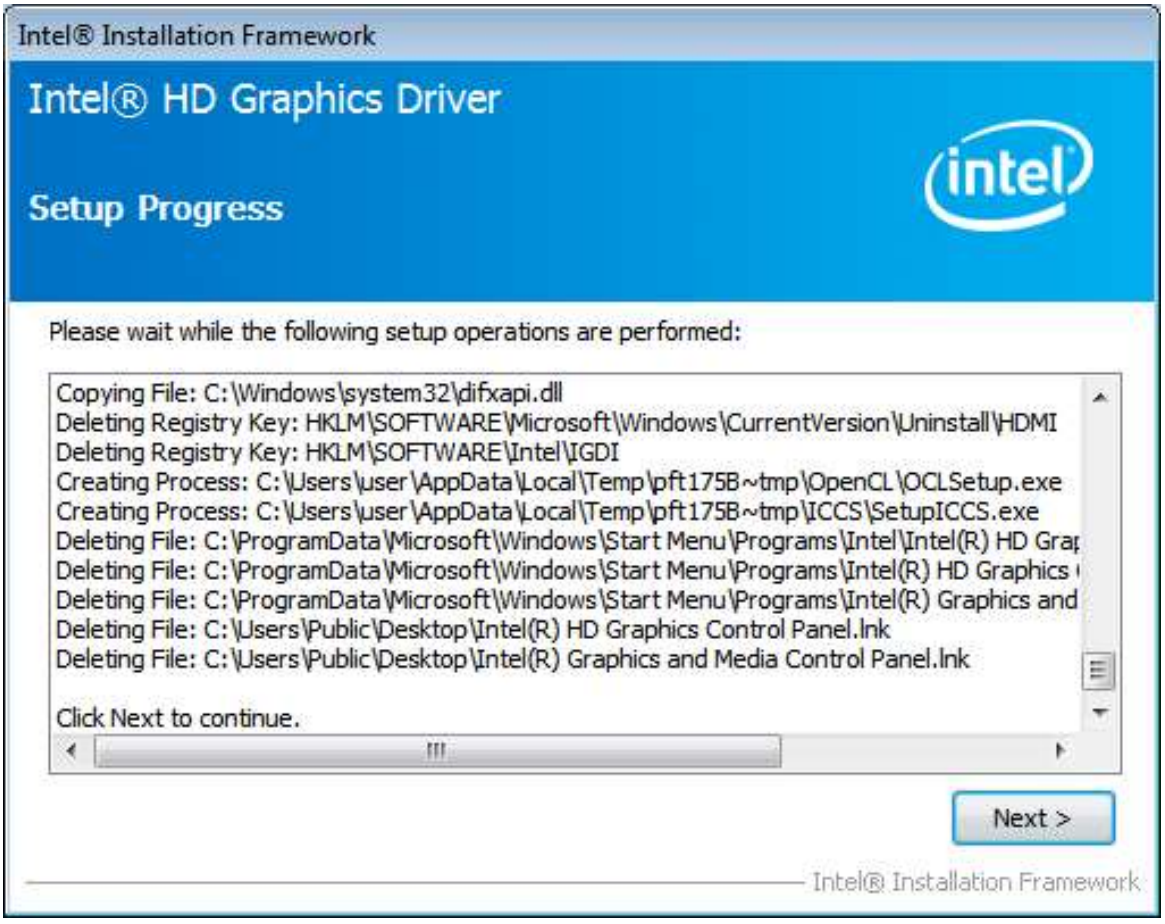
Step 4. Read the license agreement. Click **Yes** to accept the license agreement.



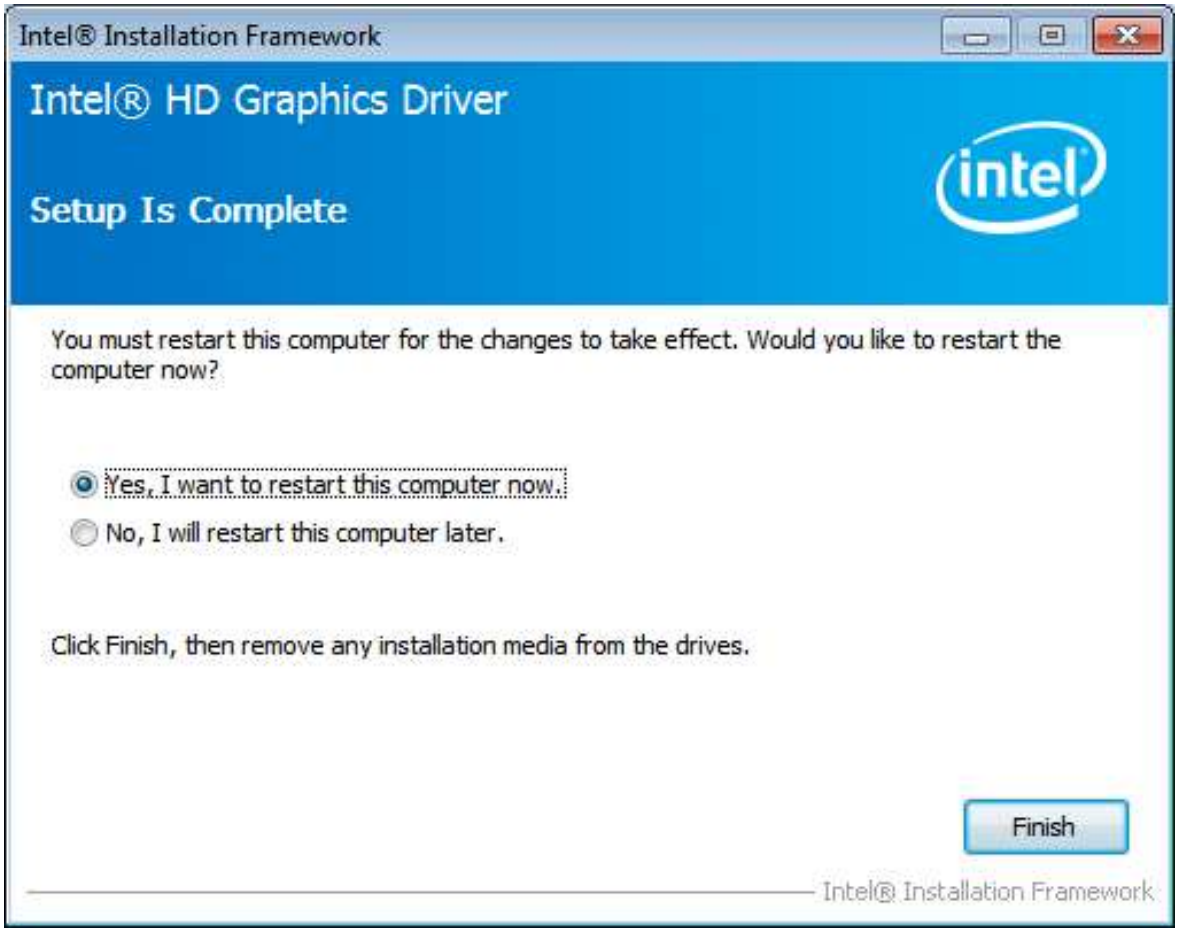
Step 5. Click **Next**.



Step 6. Click **Next.**



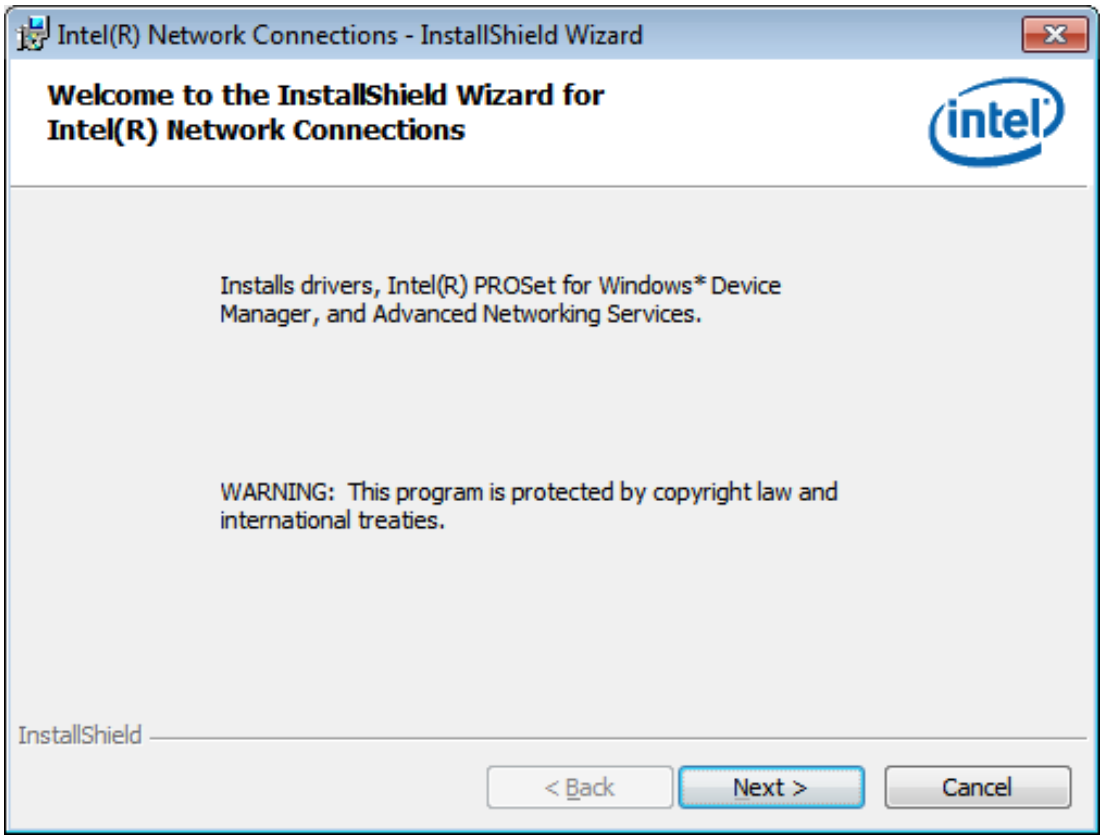
Step 7. Select **Yes, I want to restart this computer now.** Click **Finish**.



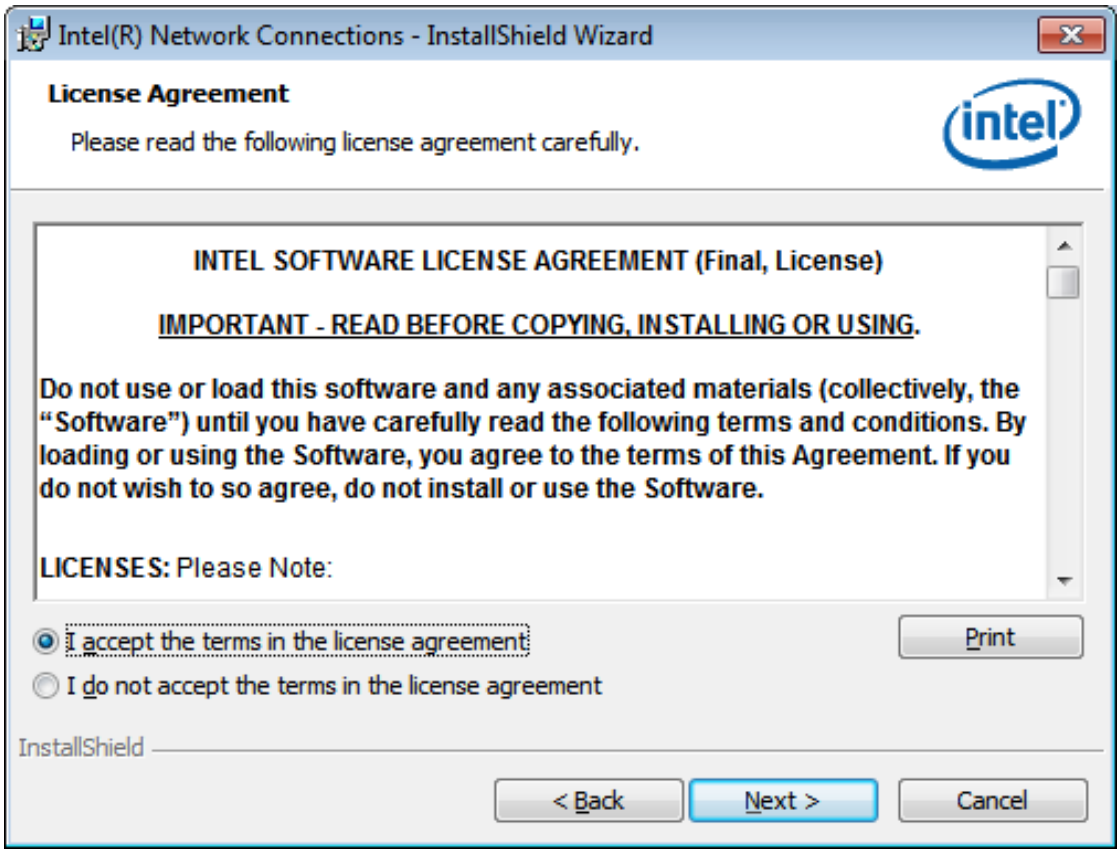
4.3 Intel(R) Network Adapter Driver

Step 1. Select **Intel(R) Network Adapter.**

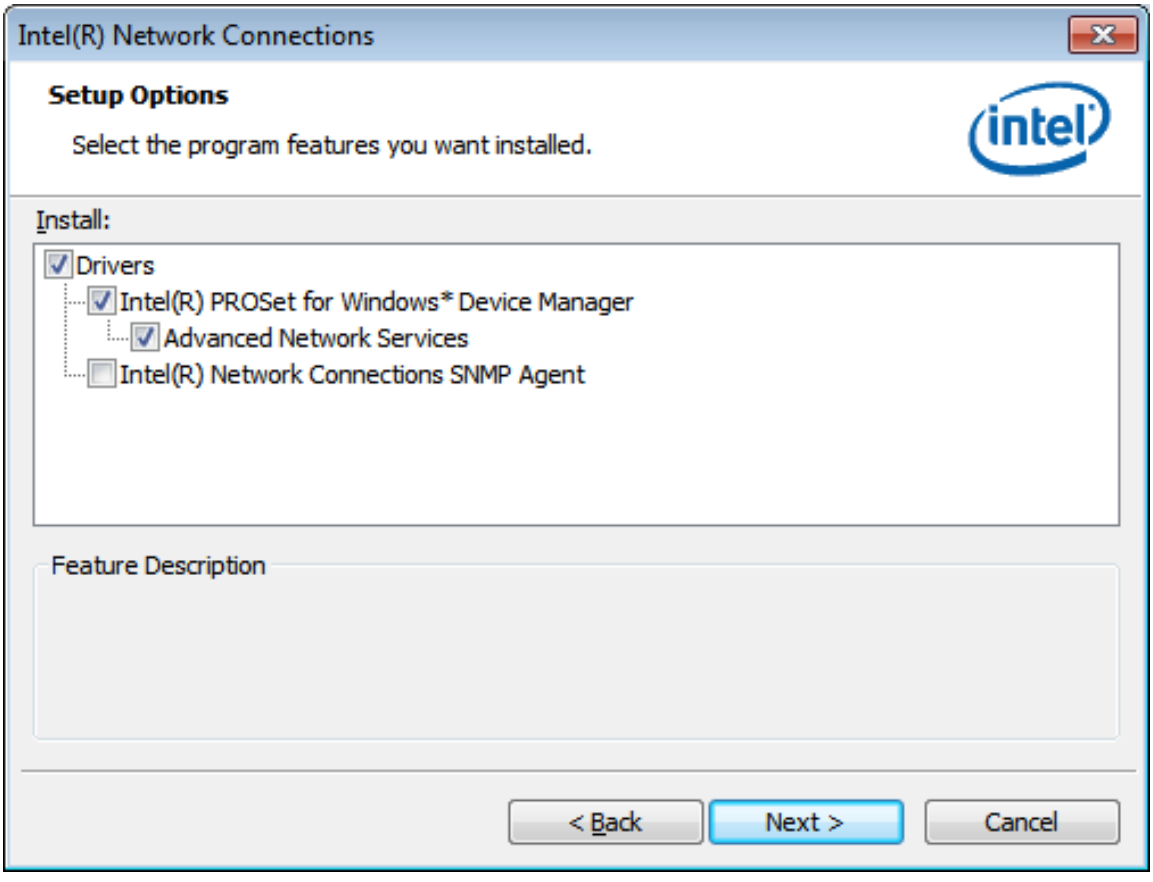
Step 2. Click **Next** to continue.



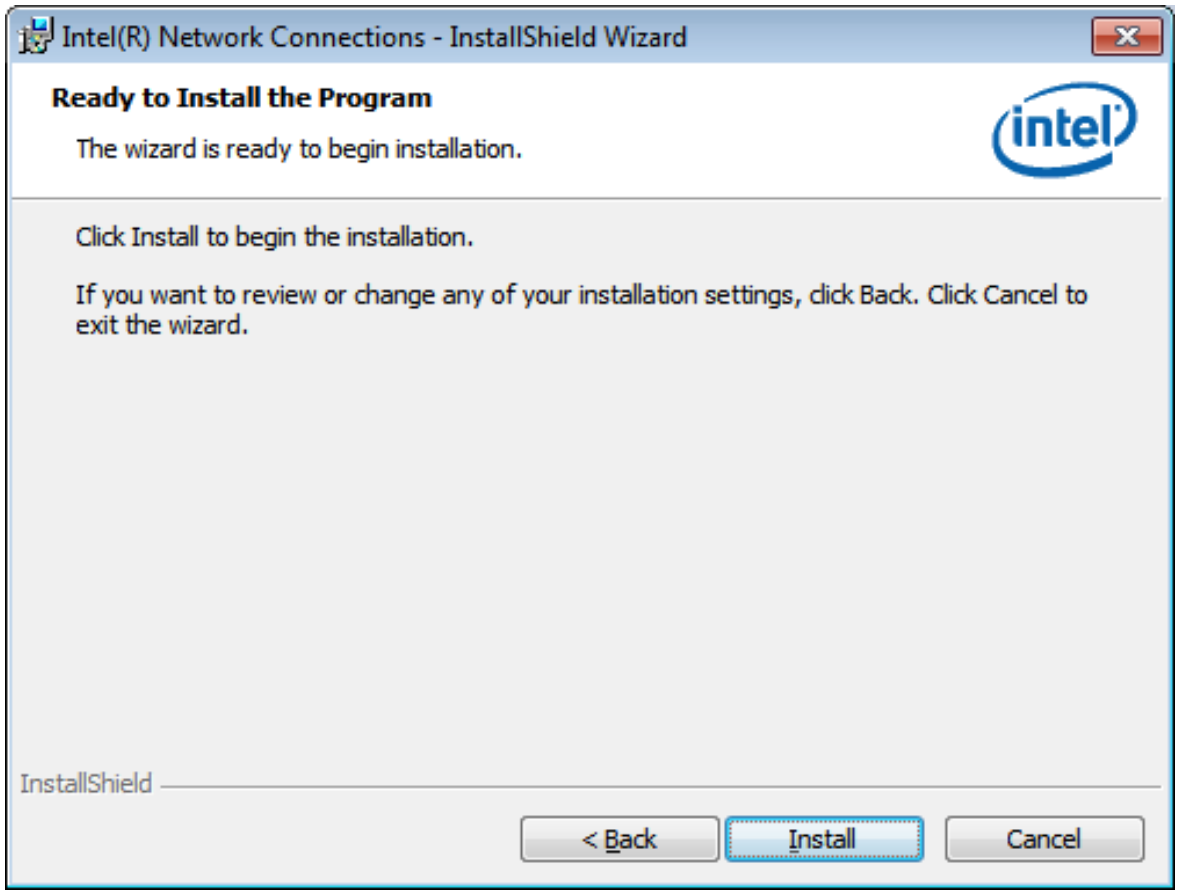
Step 3. Read the license agreement. Select **I accept the terms in the license agreement** then click **Next** to continue.



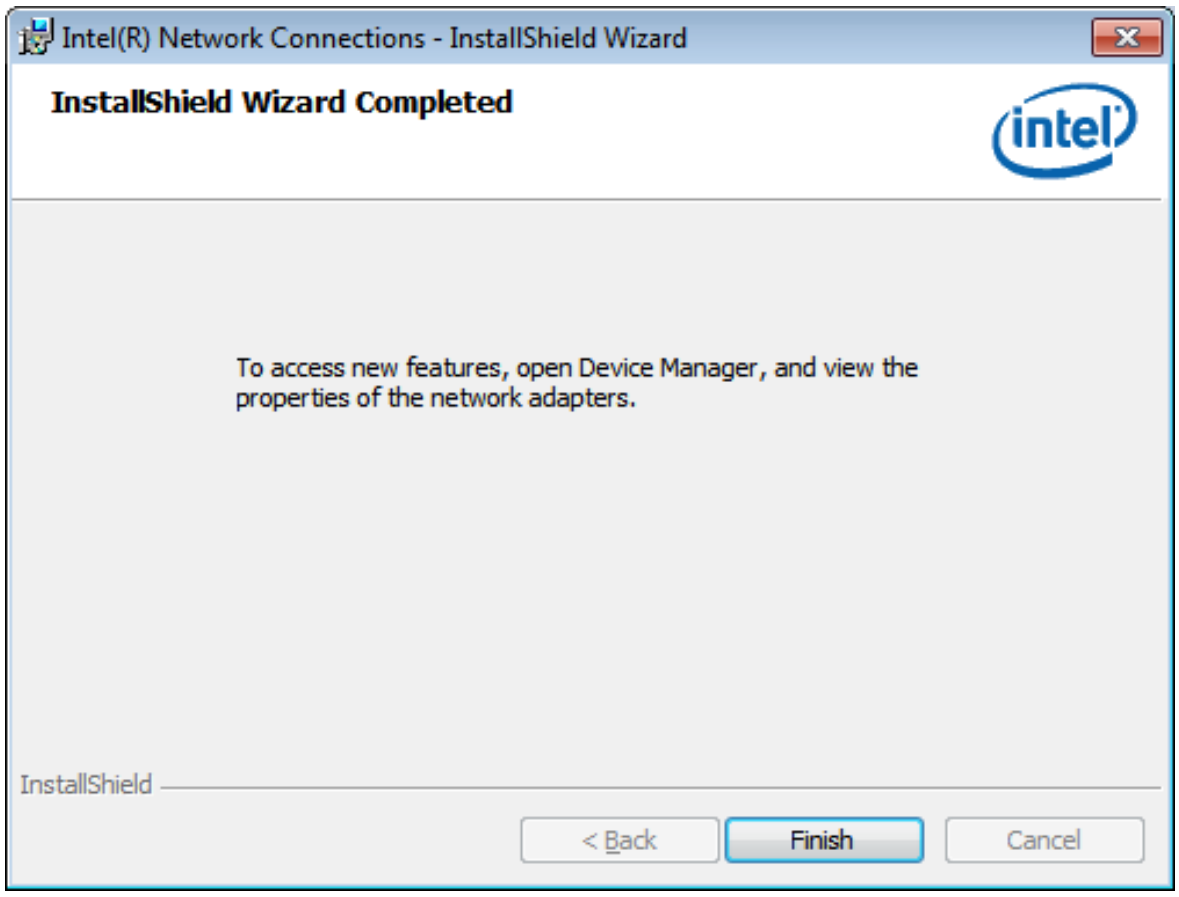
Step 4. Select **Drivers, Intel(R) PROSet for Windows* Device Manager, Advanced Network Services.** Click **Next** to continue.



Step 5. Click **Install** to begin the installation.



Step 6. Click **Finish** to compete the installation.

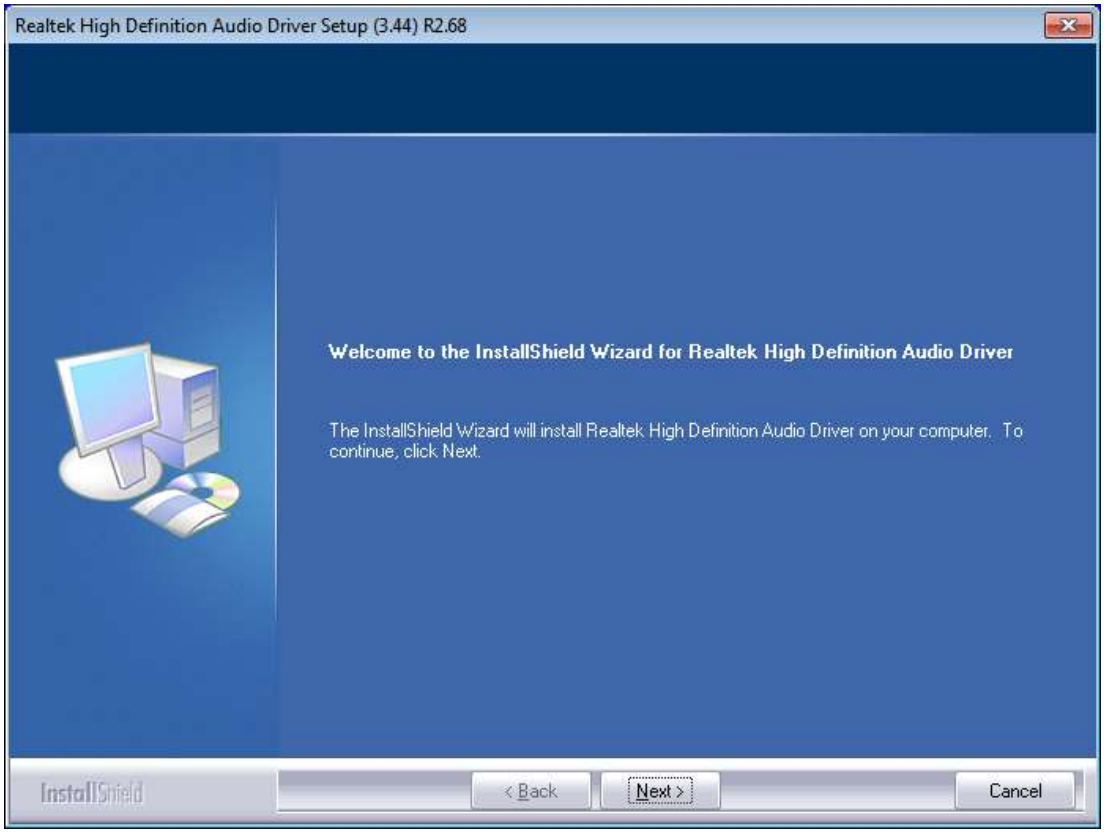


4.4 Realtek HD Audio Driver Installation

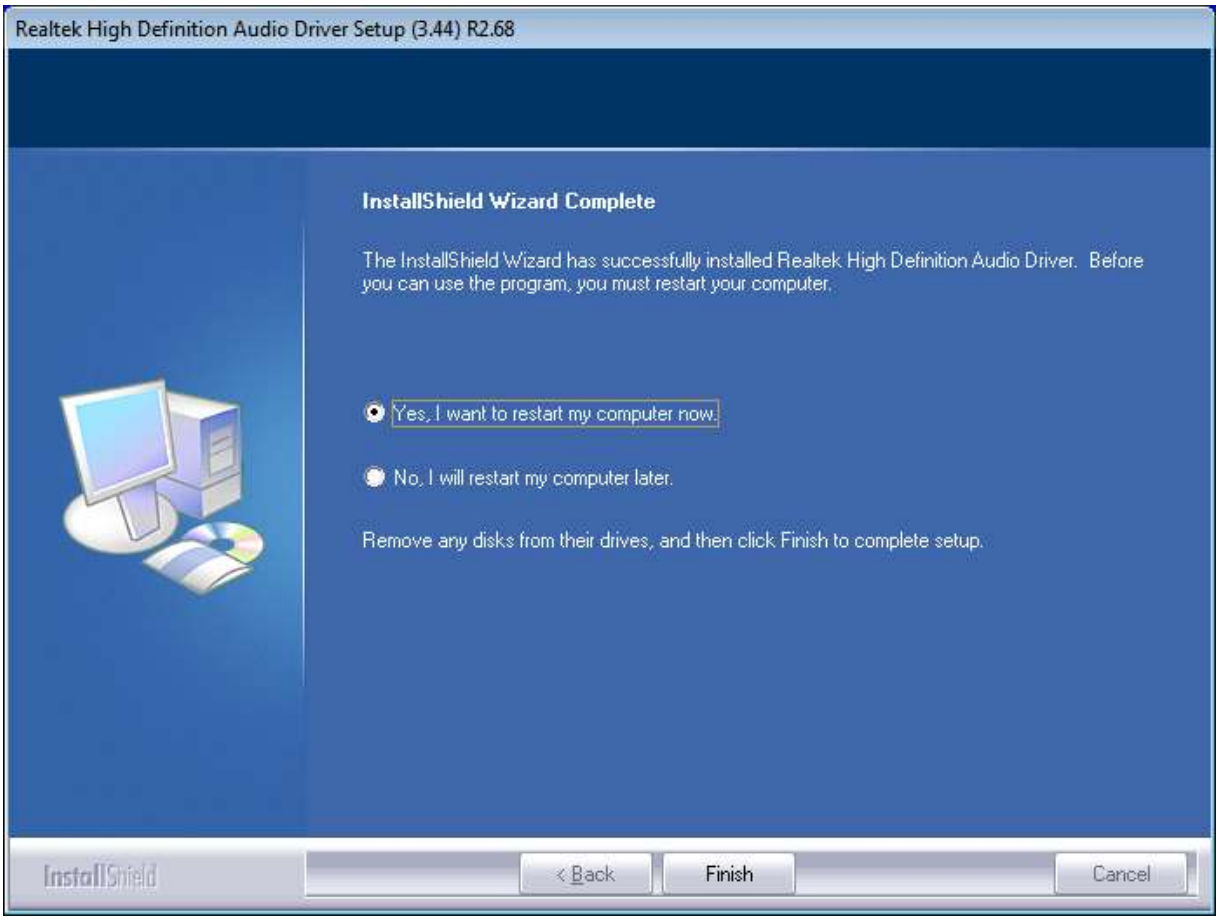
To install the Realtek High Definition (HD) Audio driver, please follow the steps below.

Step 1. Select **Realtek ALC662 HD Audio Codec Driver** from the list.

Step 2. Wait for extracting the files then click **Next** to continue.



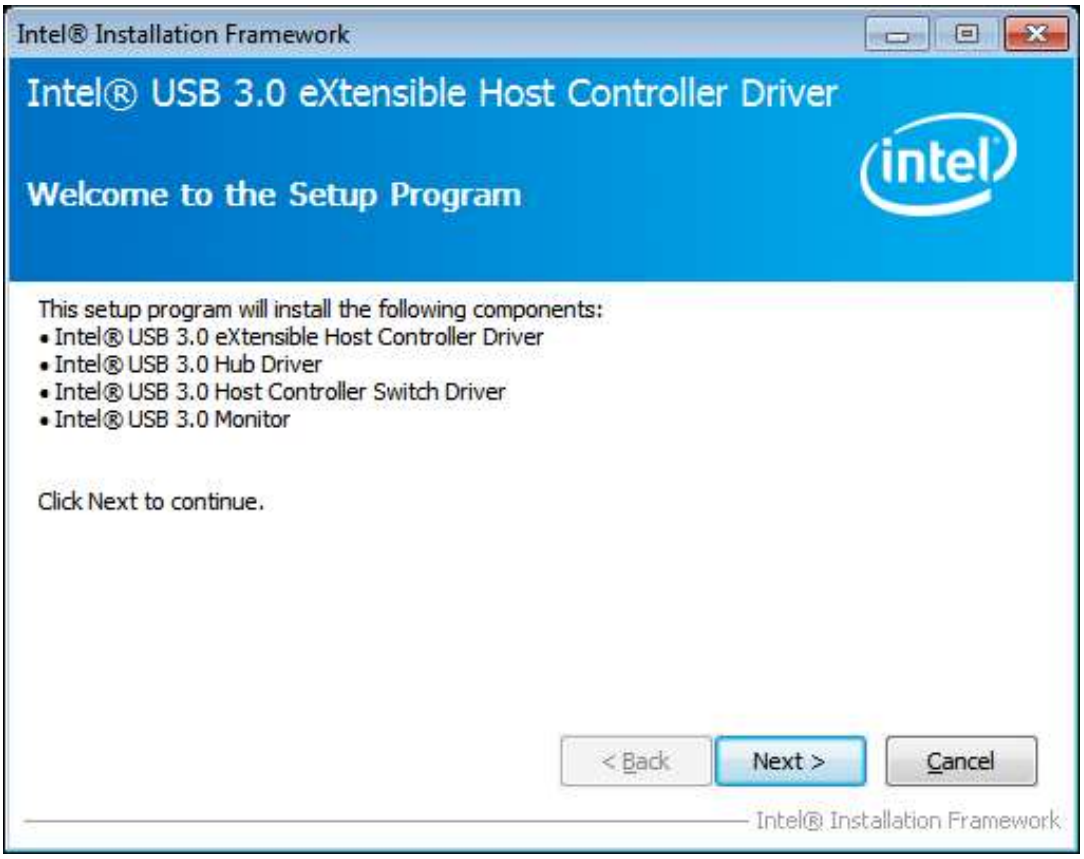
Step 3. Select **Yes, I want to restart my computer now.** then click **Finish.**



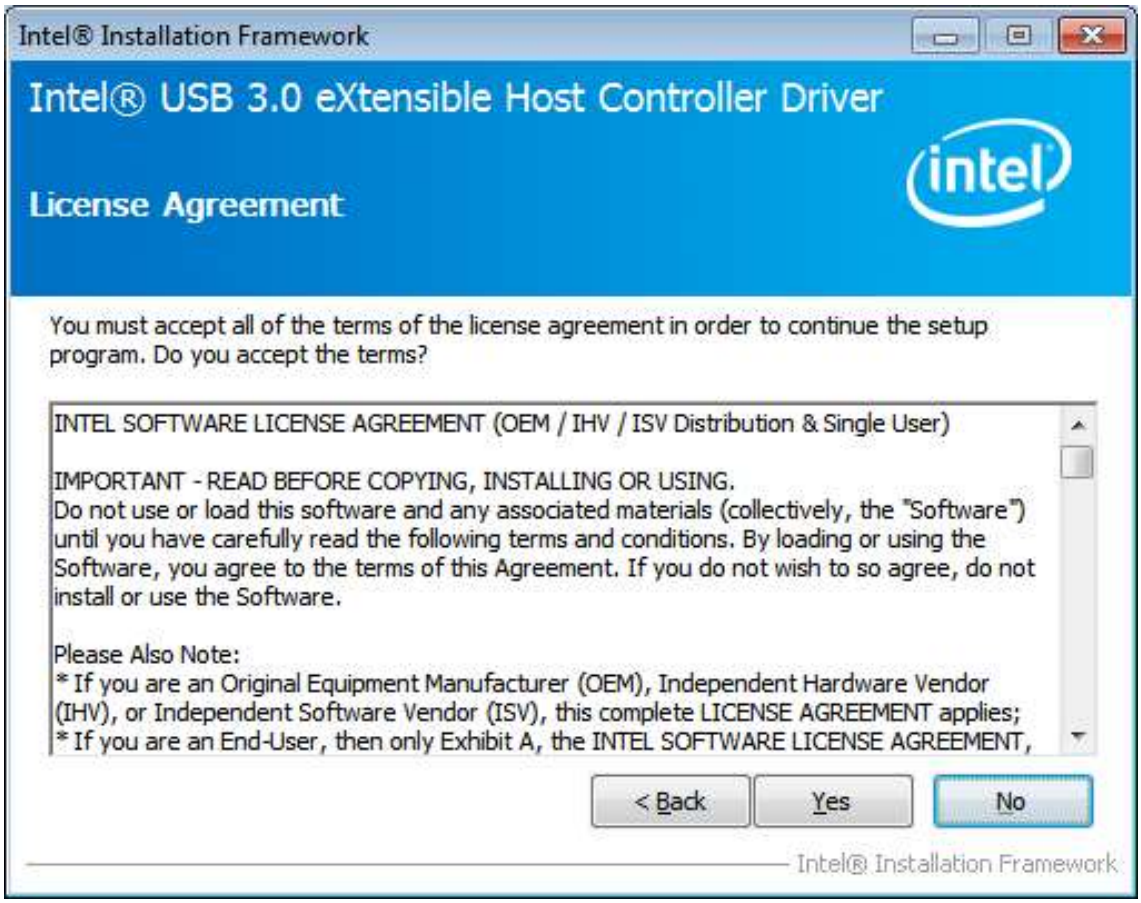
4.5 Intel(R) USB 3.0 Driver

Step 1. Select **Intel(R) USB 3.0 Driver**

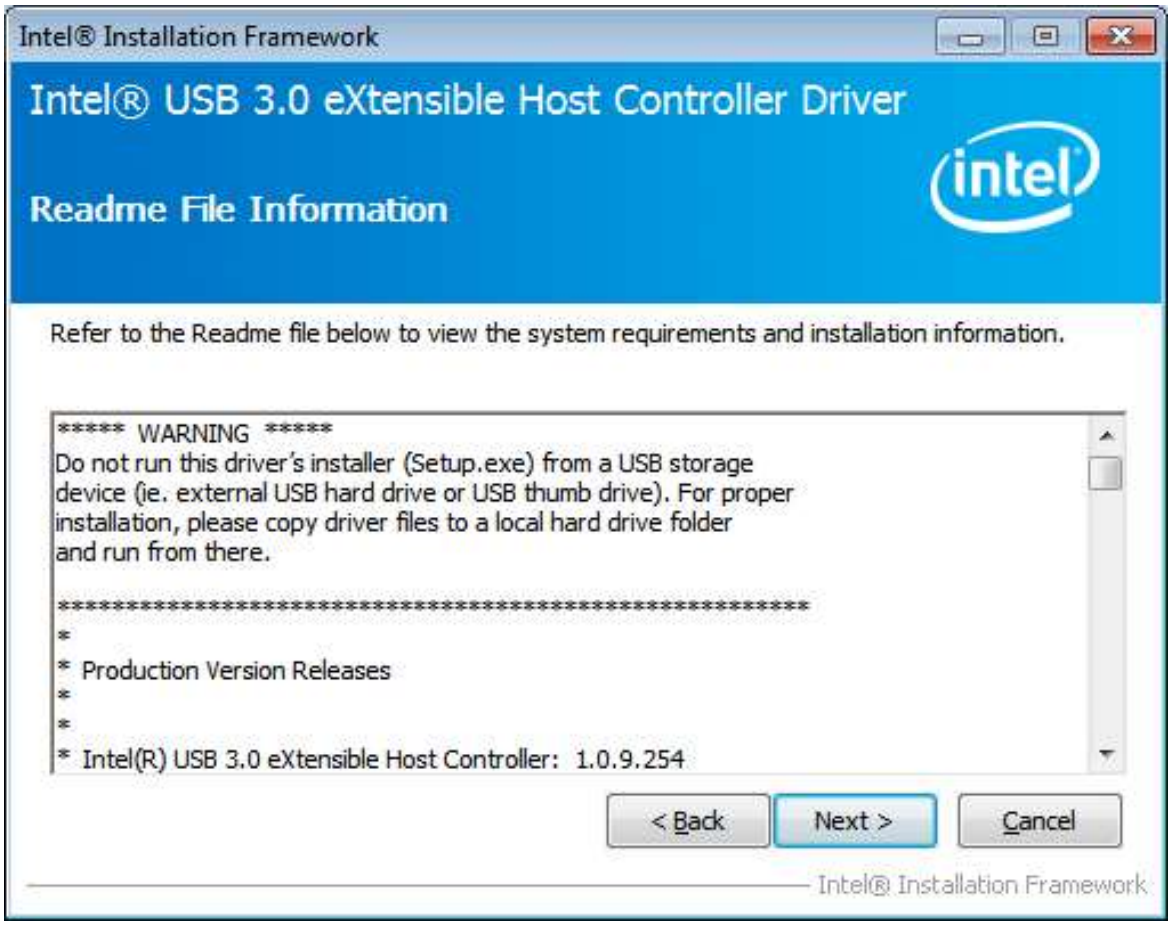
Step 2. Click **Next** to continue.



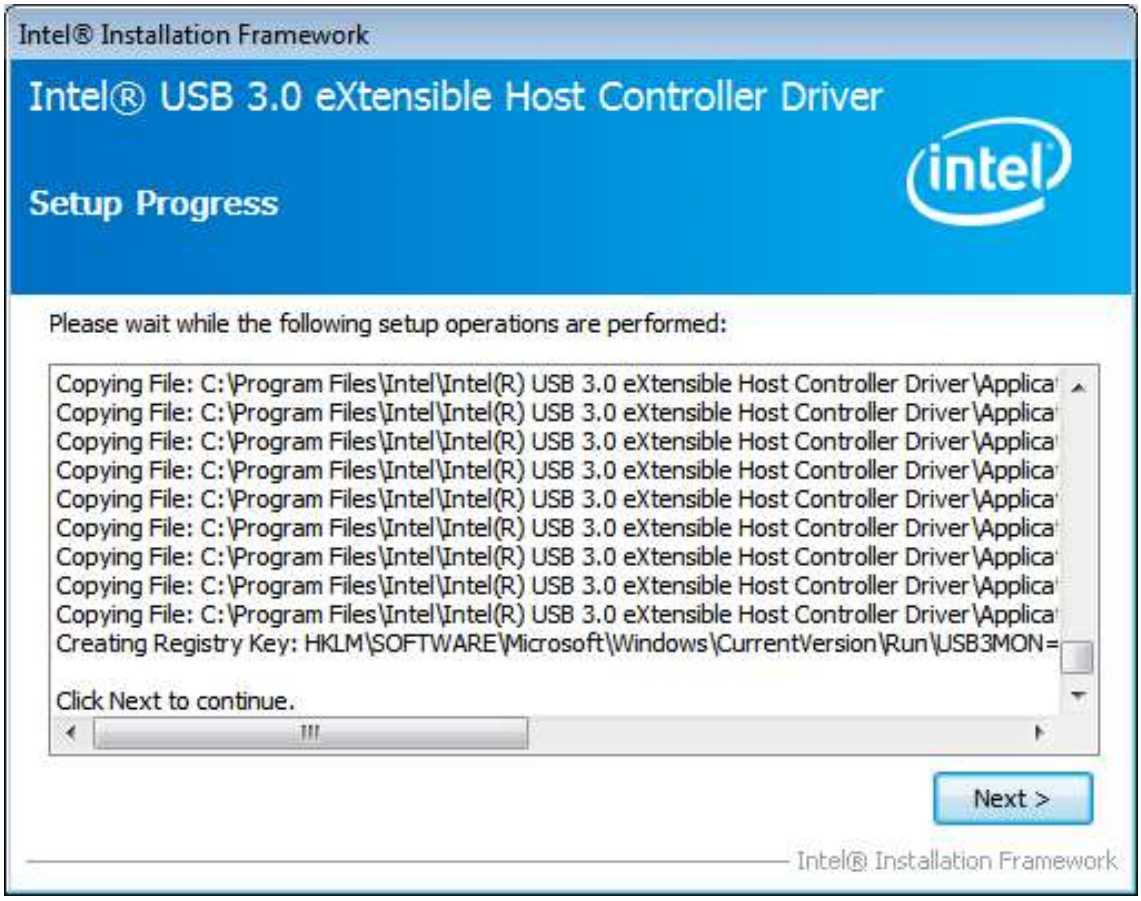
Step 3. Read the license agreement. Click **Yes** to continue.



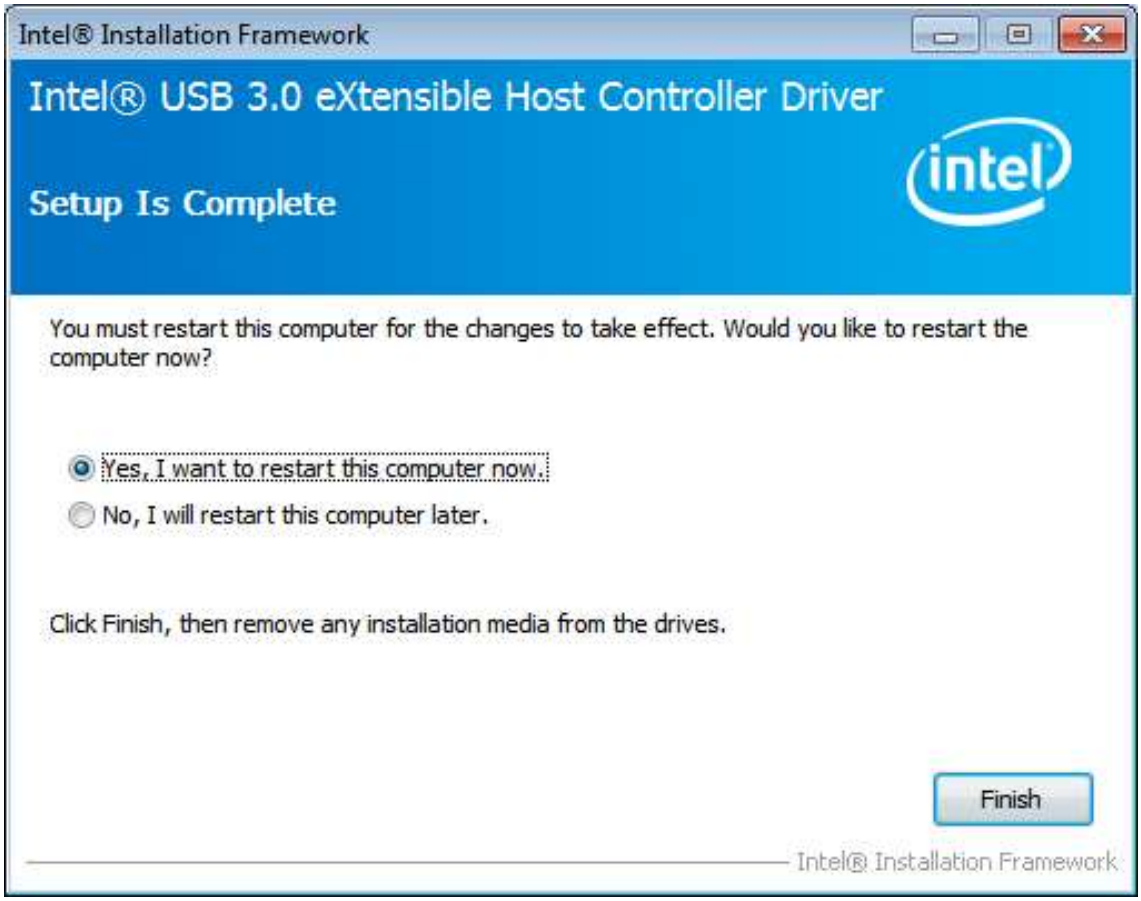
Step 4. Click **Next** to continue.



Step 5. Click **Next** to continue.



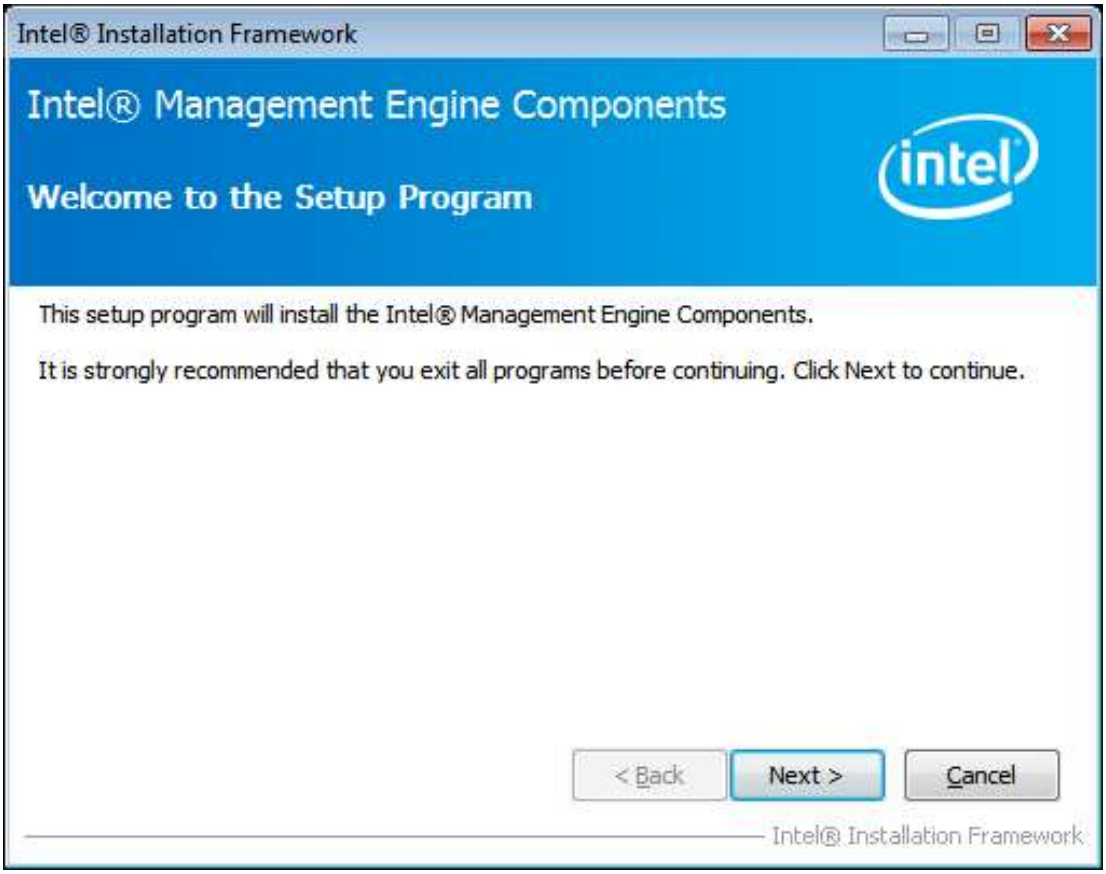
Step 6. Select **Yes, I want to restart this computer now.** Click **Finish**.



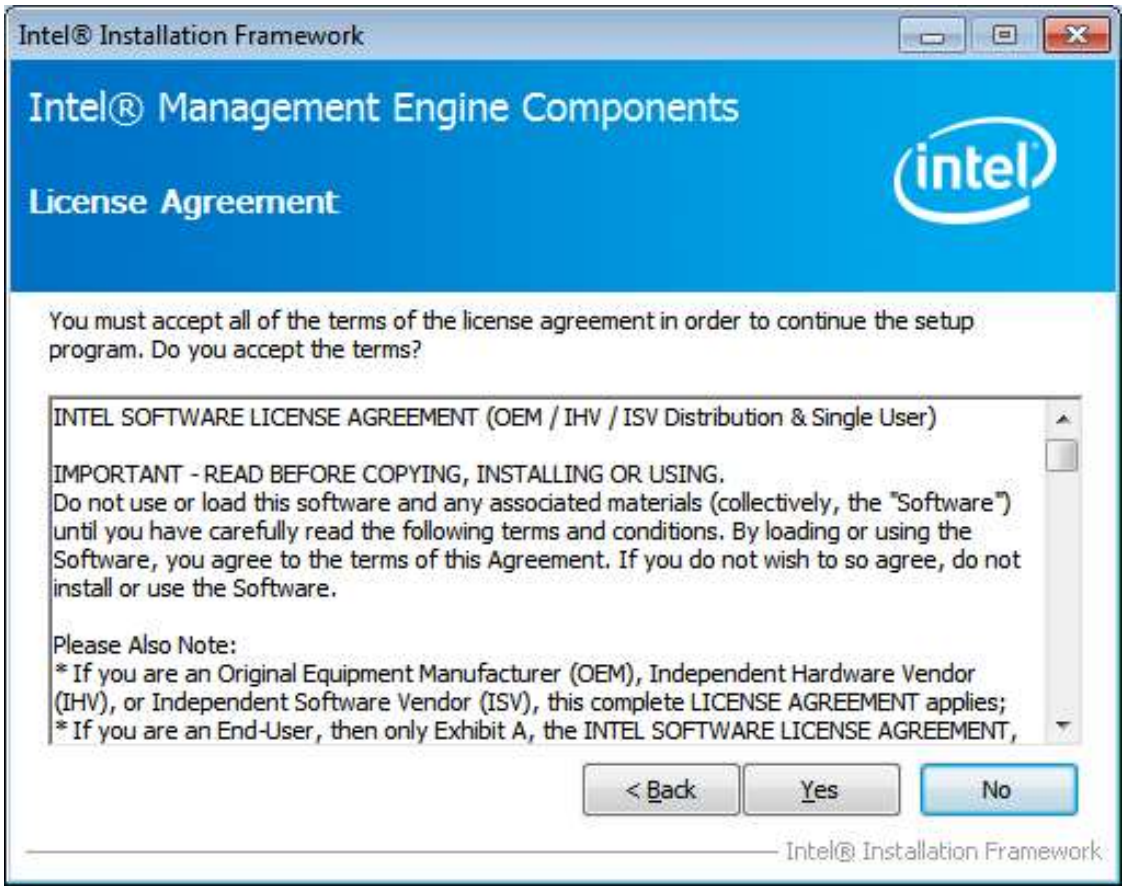
4.6 Intel(R) AMT Driver

Step 1. Select **Intel(R) AMT Driver**

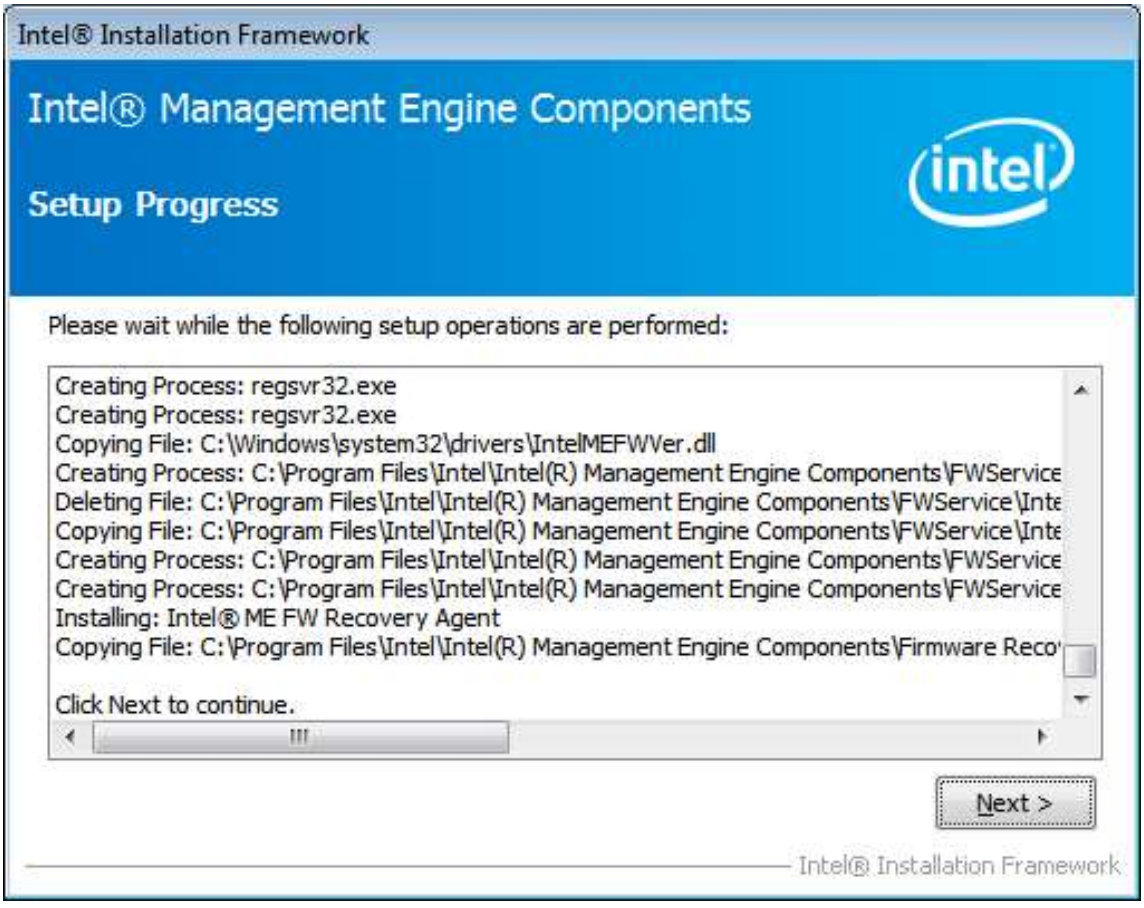
Step 2. Click **Next** to continue.



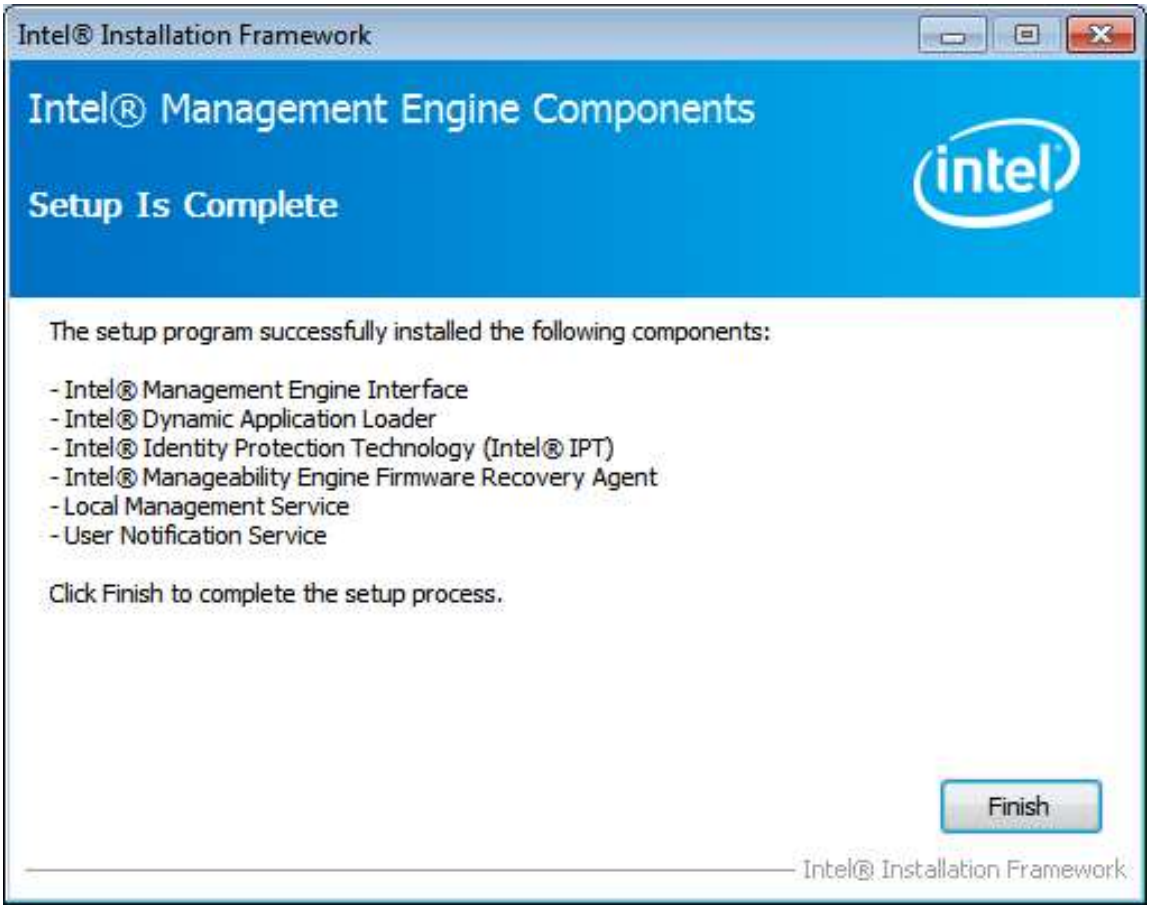
Step 3. Read the license agreement. Click **Yes** to continue.



Step 4. Click **Next** to continue.



Step 6. Click **Finish** to compete the setup.



Chapter 5 Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your PenMount 6000 Controller Board to work with different operating systems.

NOTE: PenMount USB drivers support up to 15 USB controllers.

5.1 Introduction to Touch Screen Controller Board

PenMount 6300 USB control board is a touch screen control board designed for USB interface and specific for 4, 5, 8-wire touch screens. It is designed with USB interface features with multiple devices supporting function. PenMount 6300 control board using PenMount 6000 controller that has been designed for those who may like and all-in-one solution with 10-bit A/D converter built-in to make the total printed circuit board denser, circuit diagram also designed for 12-bit ADC for optional. There are two connectors on this board, one connector is for 4, 5, 8-wire touch screen cable (optional), and another is for 4-pin USB A type cable (optional).

5.2 Windows 2000/XP/2003/Vista Universal Driver Installation for PenMount 6000 Series

Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

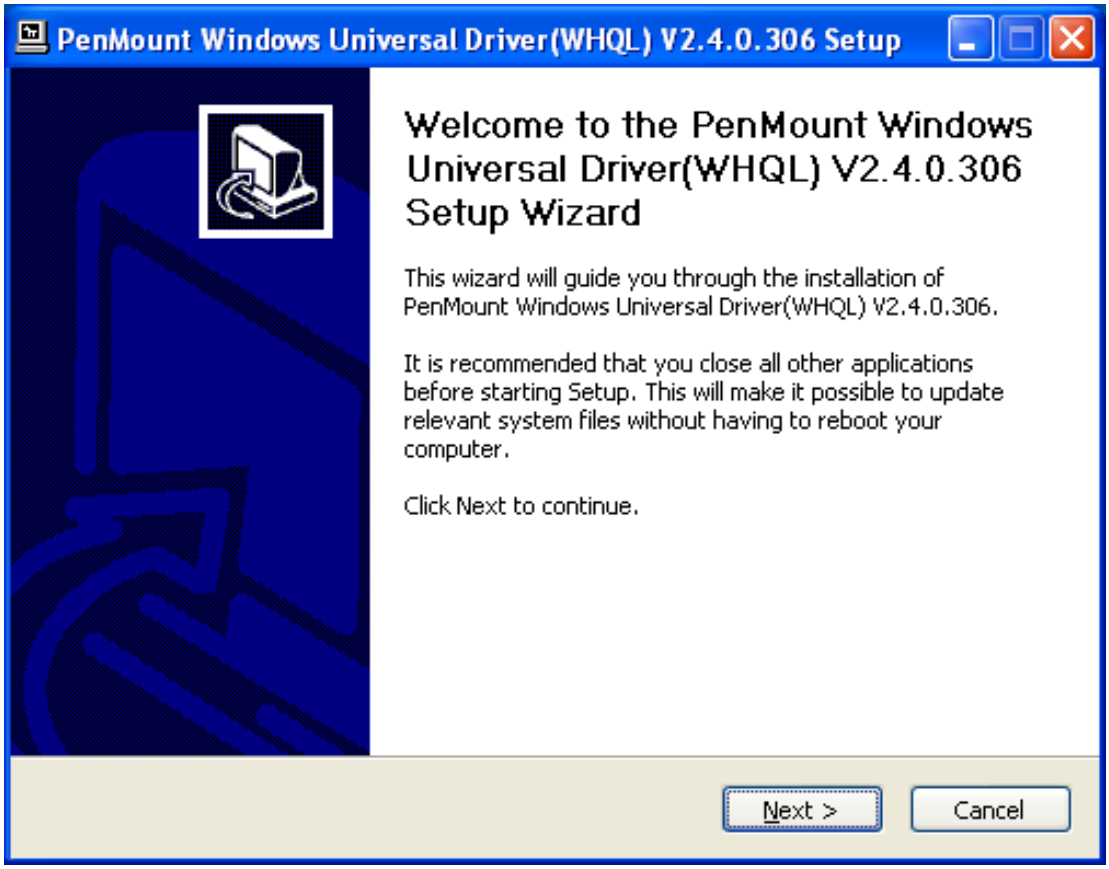
5.2.1 Installing Software

If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 2000/XP driver.

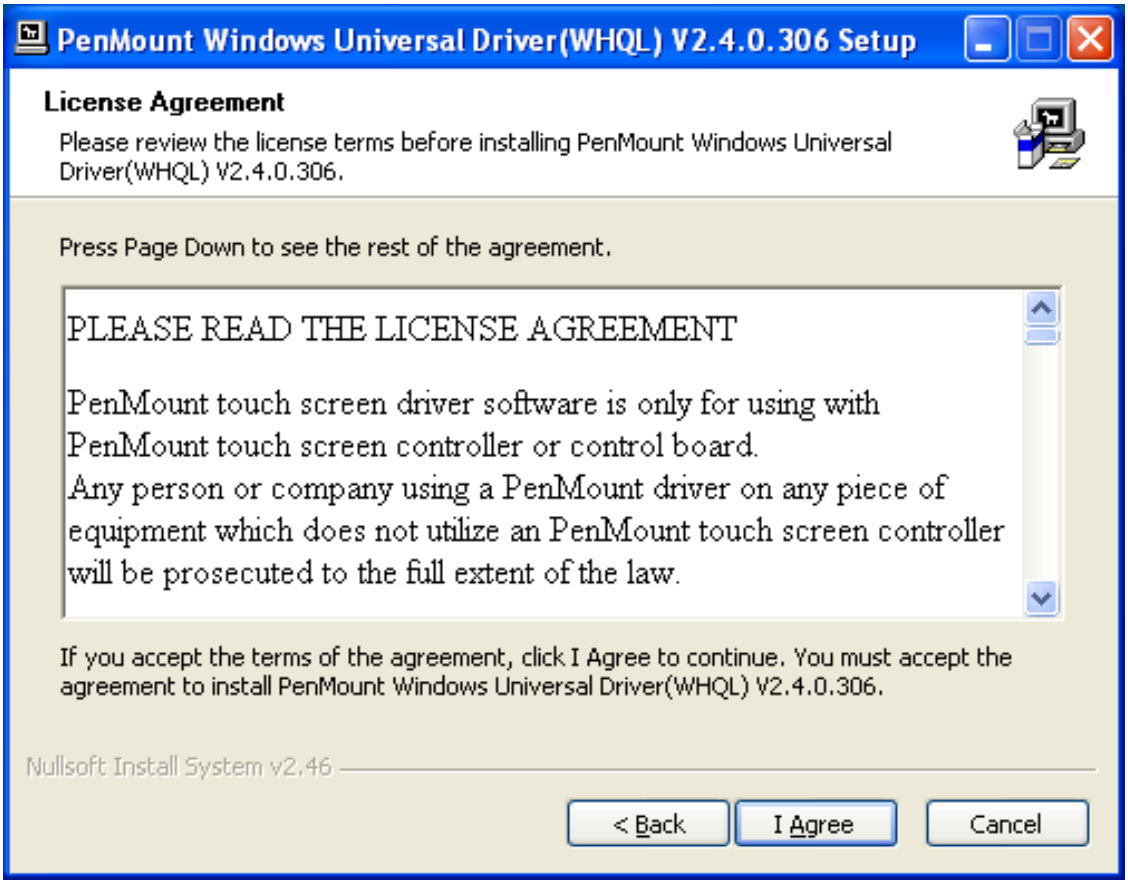
Step 1. Please make sure your PenMount 6000 device had plugged in advance. If your device uses RS232 interface, please plugged in before the machine is turned on. When the system first detects the controller board, a screen appears that shows “Unknown Device”. Do not use this hardware wizard. Press Cancel.

Step 2. Insert the Aplex product CD install **setup.exe.** the screen below would appear. See touch panel driver

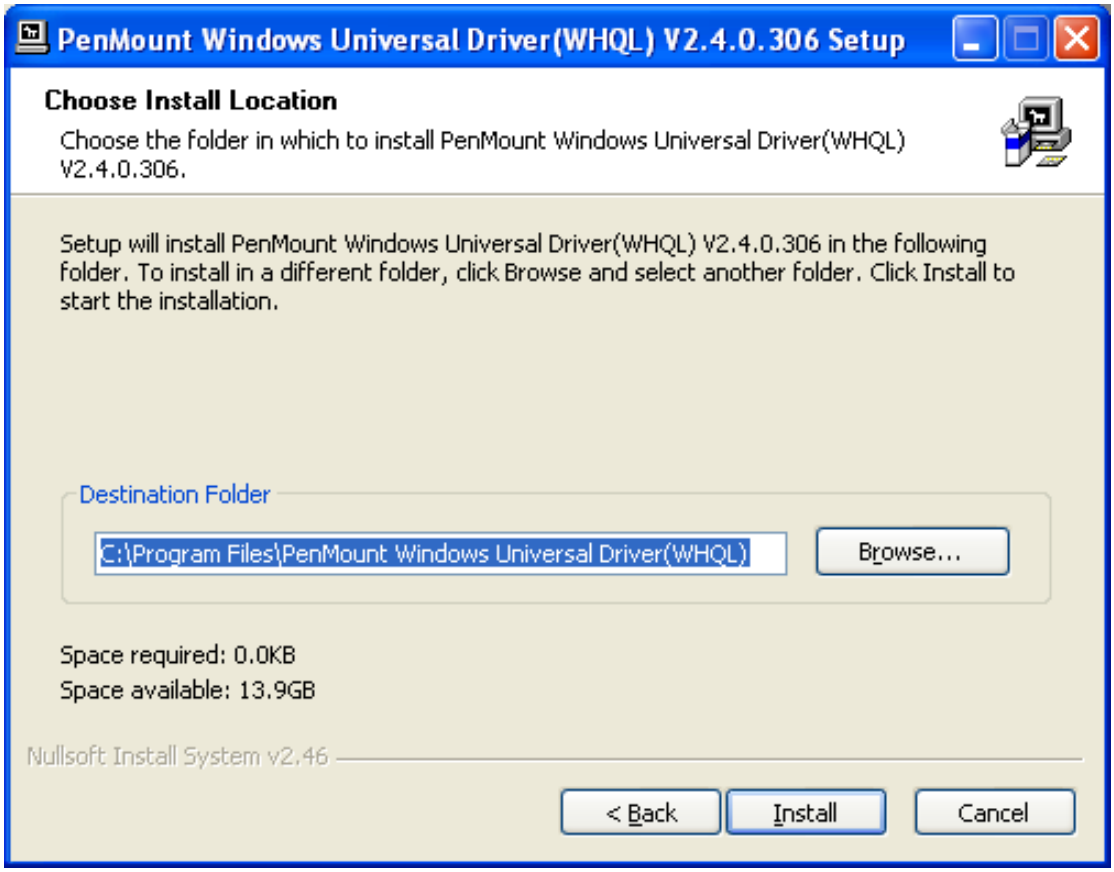
Step 3. Click **Next** to continue.



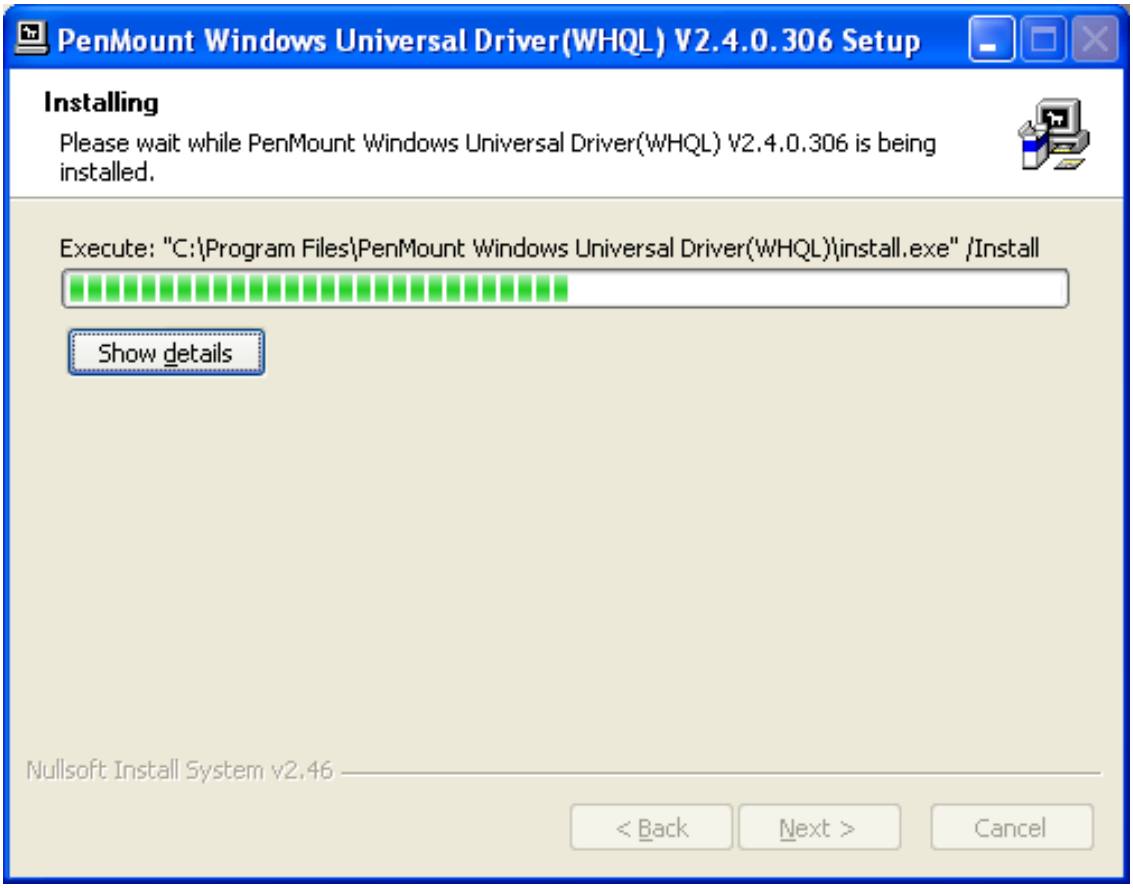
Step 4. Read the license Agreement. Click **I agree** to agree the license agreement.



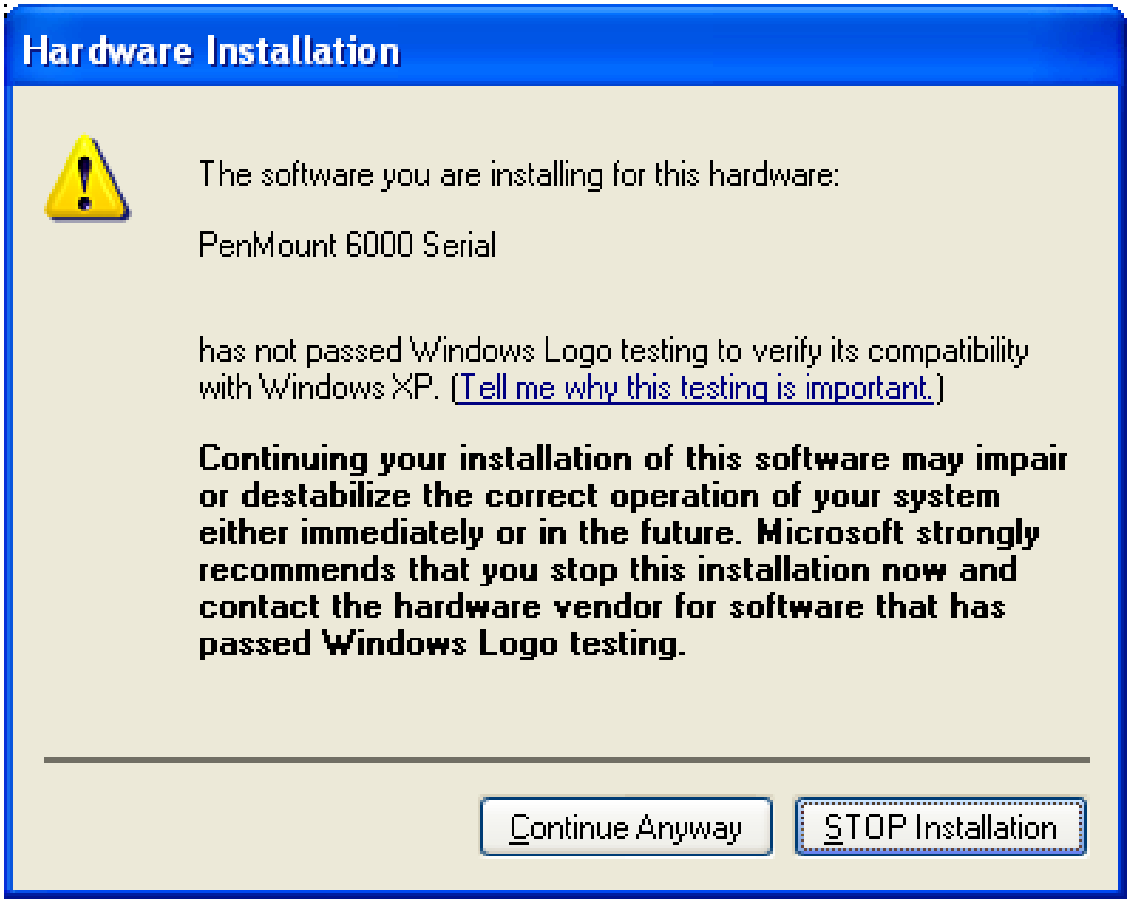
Step 5. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



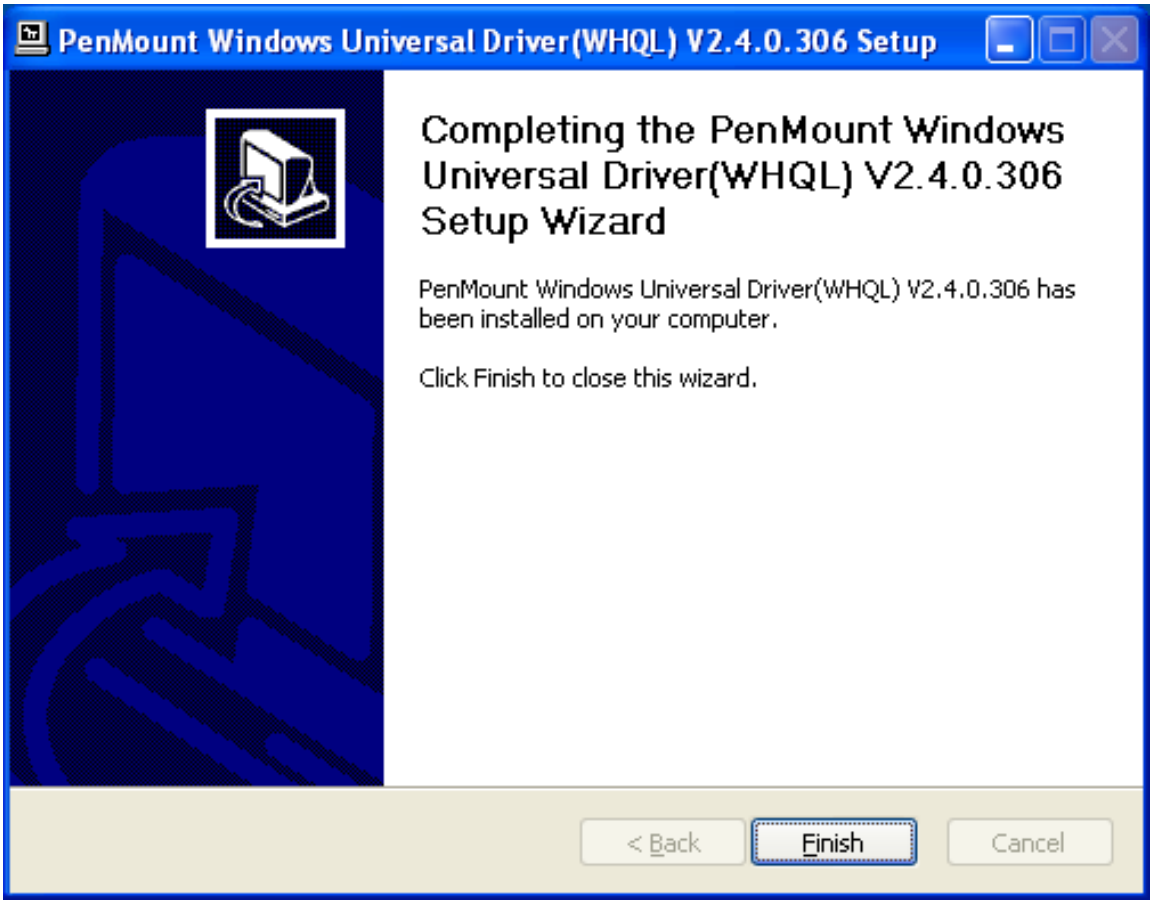
Step 6. Wait for installation. Then click **Next** to continue.



Step 7. Click **Continue Anyway** to continue.



Step 8. Click **Finish** to compete installation.



5.2.2 Software Functions

Upon rebooting, the computer automatically finds the new 6000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

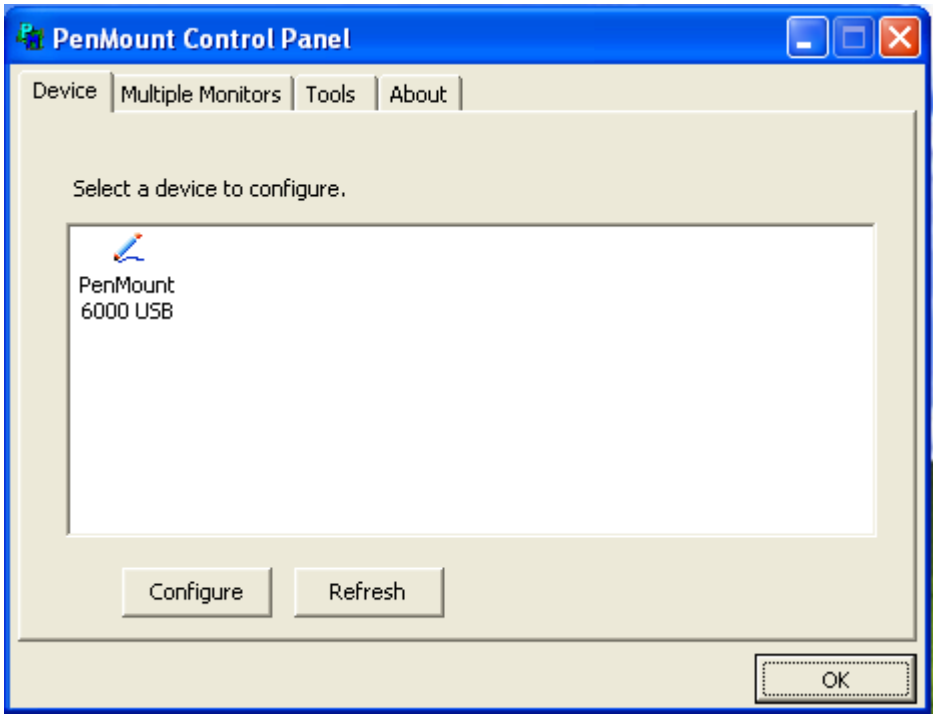
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel

The functions of the PenMount Control Panel are **Device, Multiple Monitors, Tools** and **About**, which are explained in the following sections.

Device

In this window, you can find out that how many devices are detected on your system.



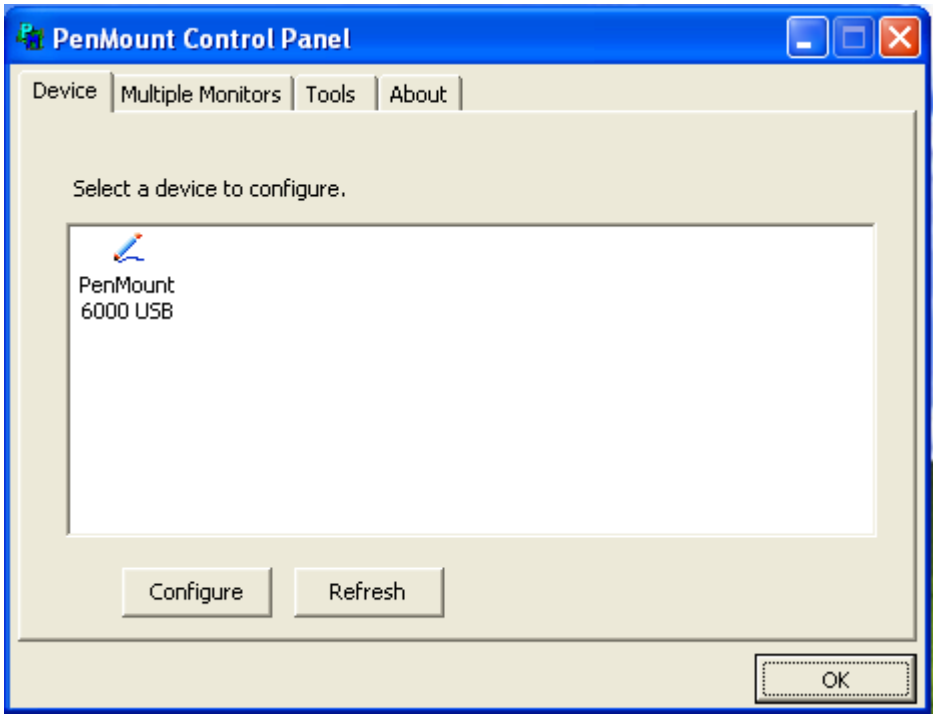
Calibrate

This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

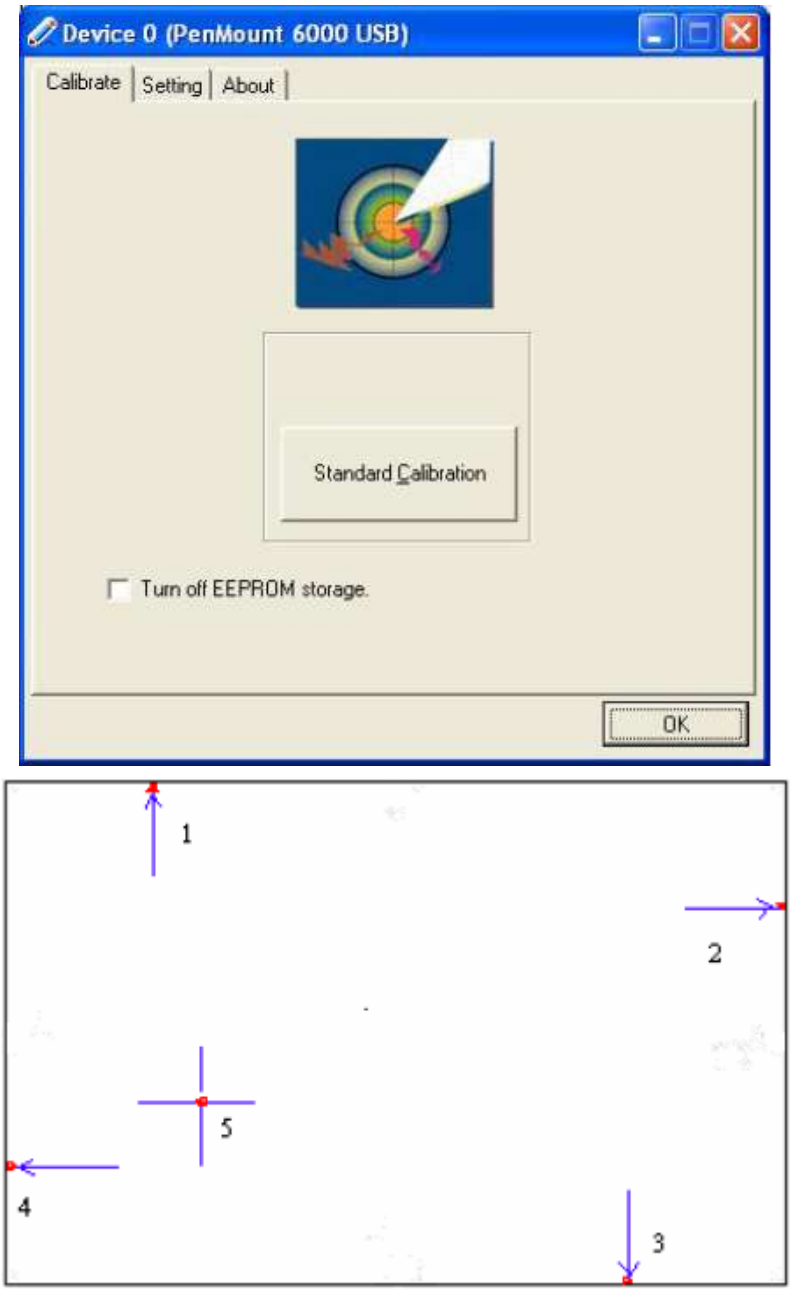
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**

Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC'.**
Command Calibration	**Command call calibration function. Use command mode call calibration function, this can uses Standard, 4, 9, 16 or 25 points to calibrate** E.g. Please run ms-dos prompt or command prompt c:\Program Files\PenMount Universa Driver\Dmcctrl.exe -calibration 0 (Standard Calibration) Dmcctrl.exe - calibration ($) 0= Standard Calibration 4=Advanced Calibration 4 9=Advanced Calibration 9 16=Advanced Calibration 16 25=Advanced Calibration 25

Step 1. Please select a device then click **Configure**. You can also double click the device too.

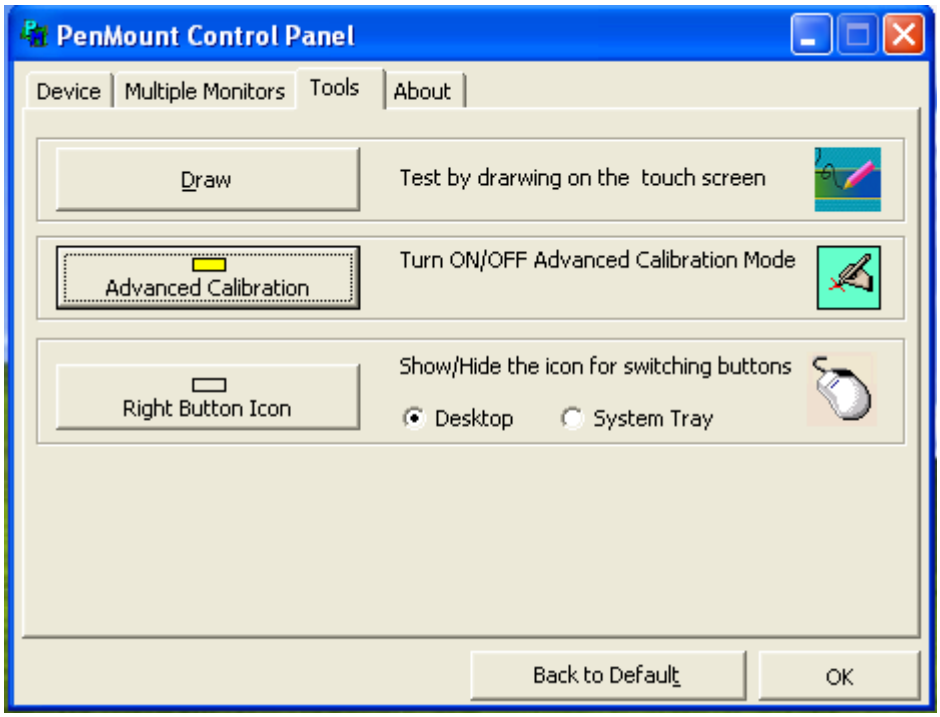


Step 2. Click **Standard Calibration** to start calibration procedure

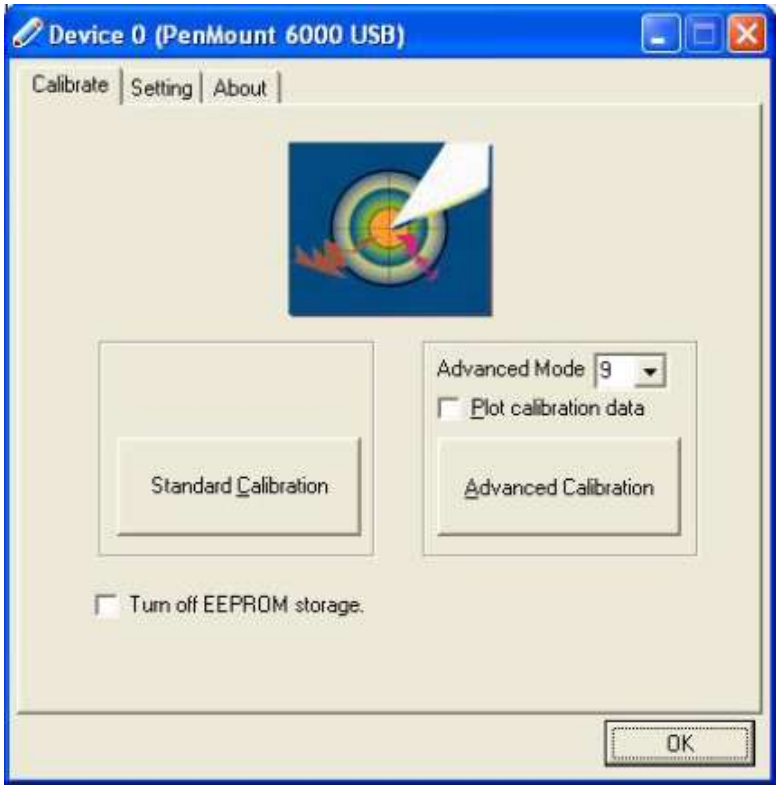


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

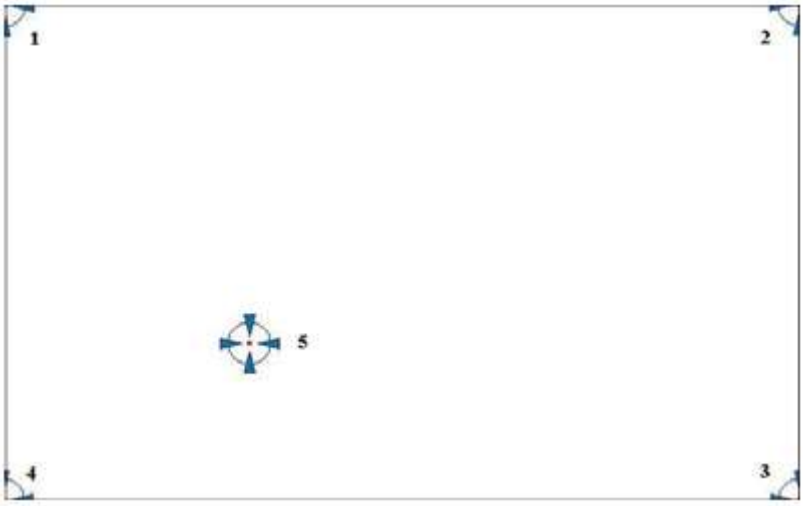
Step 3. Come back to PenMount Control Panel and select **Tools** then Click **Advanced Calibration**.



Step 4. Select **Device** to calibrate, then you can start to do “Advanced Calibration”.



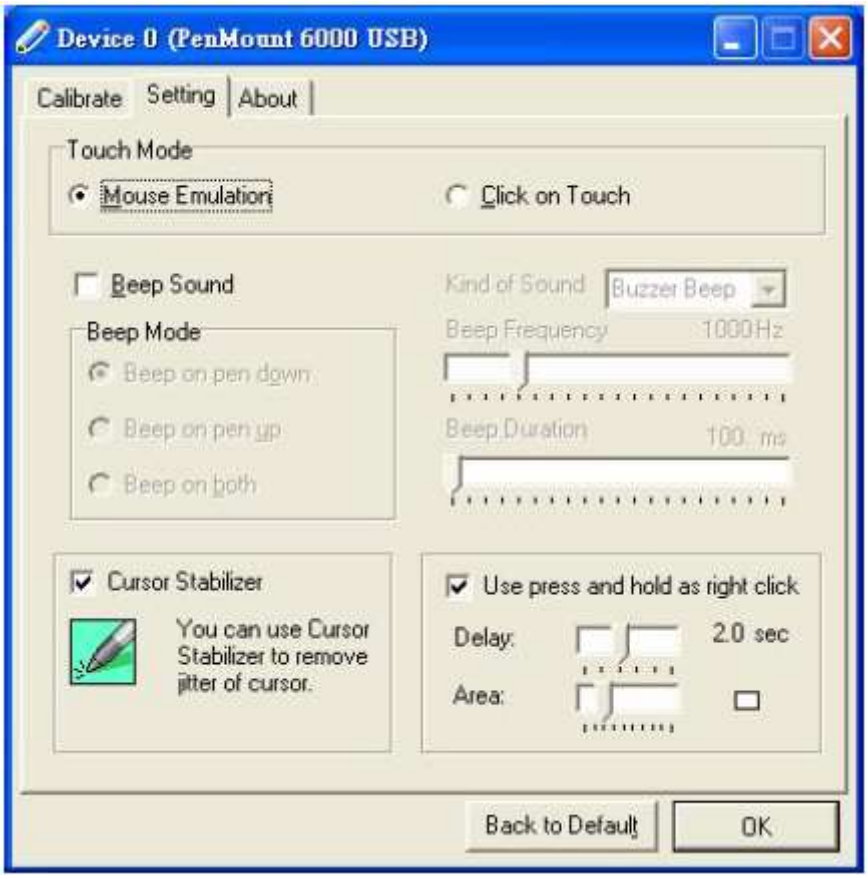
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



Plot Calibration Data	**Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.**
Turn off EEPROM storage	**The function disable for calibration data to write in Controller. The default setting is Enable**

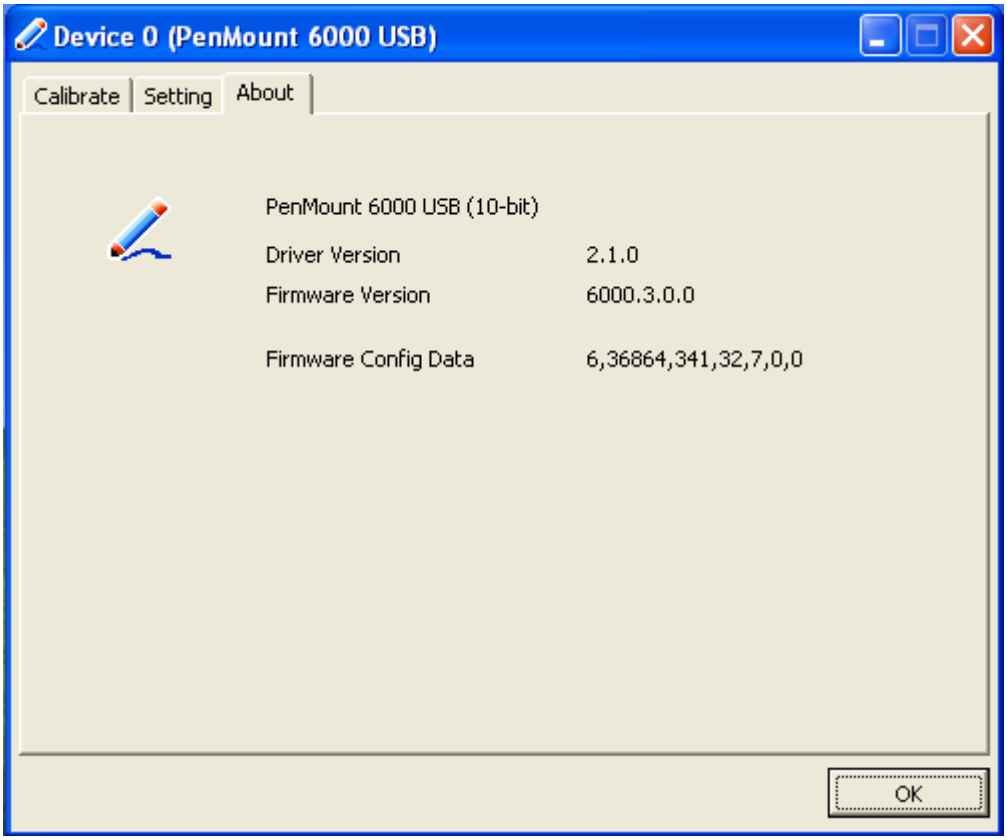
Setting

Touch Mode	**This mode enables and disables the mouse's ability to drag on-screen icons—useful for configuring POS terminals.** **Mouse Emulation – Select this mode and the mouse functions as normal and allows dragging of icons.** **Click on Touch – Select this mode and the mouse only provides a click function, and dragging is disabled**
Beep Sound	**Enable Beep Sound – turns beep function on and off** **Beep on Pen Down – beep occurs when pen comes down** **Beep on Pen Up – beep occurs when pen is lifted up** **Beep on both – beep occurs when comes down and lifted up** **Beep Frequency – modifies sound frequency** **Beep Duration – modifies sound duration**
Cursor Stabilizer	**Enable the function support to prevent cursor shake.**
Use press and hold as right click	**You can set the time out and area for you need**



About

This panel displays information about the PenMount controller and driver version.



Multiple Monitors

Multiple Monitors supports two to six touchscreen displays for one system. PenMount drivers for Windows 2000, XP 32/64bit, and 2003 support **Multiple Monitors**. This function supports from two to six touchscreen displays for one system. Each monitor requires its own PenMount touchscreen control board, either installed inside the displayor in a central unit. The PenMount control boards must be connected to the computer COM ports via the RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors supports the following modes:

Windows Extends Monitor Function
Matrox DualHead Multi-Screen Function
nVidia nView Function

NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

Requirements

Before using the **Multiple Monitors** function you need the following:

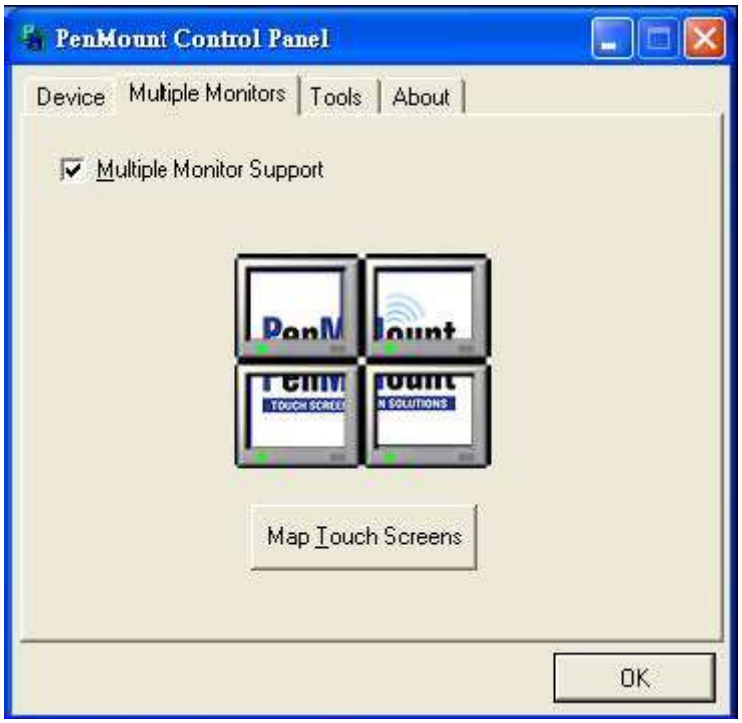
* A display card that supports multiple monitors such as the Matrox, nVidia, ATI, etc.
* (Two or more display cards supported by Windows are also ok.)
* Two or more touchscreens
* Two or more Serial Ports or USB ports.
* Two or more PenMount 6000 control boards such as 6200x, 6202x,6300 or 6500.
* The PenMount Windows Universal Driver (for 2000/XP/2003/VISTA/7).

Before using **Multiple Monitors** you must have two or more monitors that are in **extension mode**. For display cards that support multiple monitors, we suggest you consider Matrox, nVidia, or ATI cards and inquire about operation and usability issues.

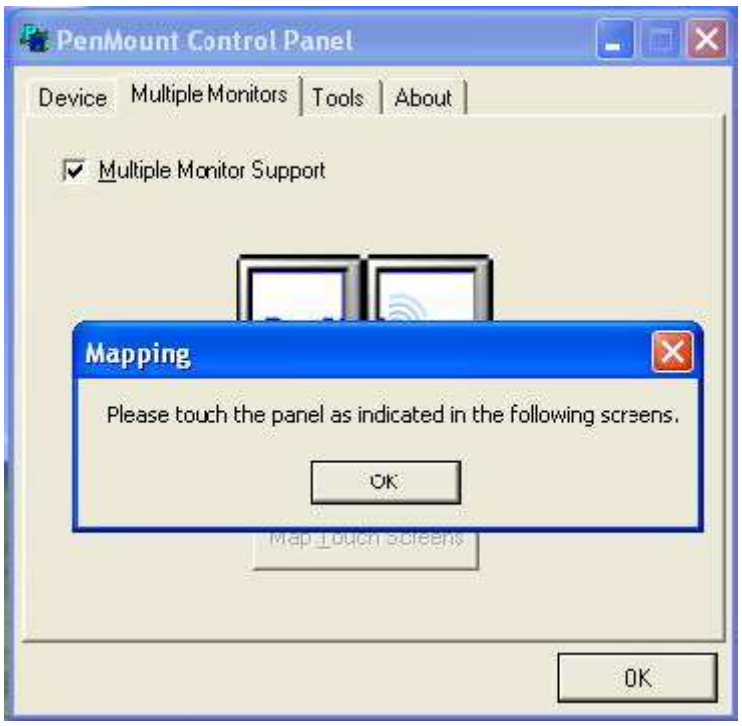
Note: Before you can use multiple monitors you need to map each monitor.

Enable the multiple display function as follows:

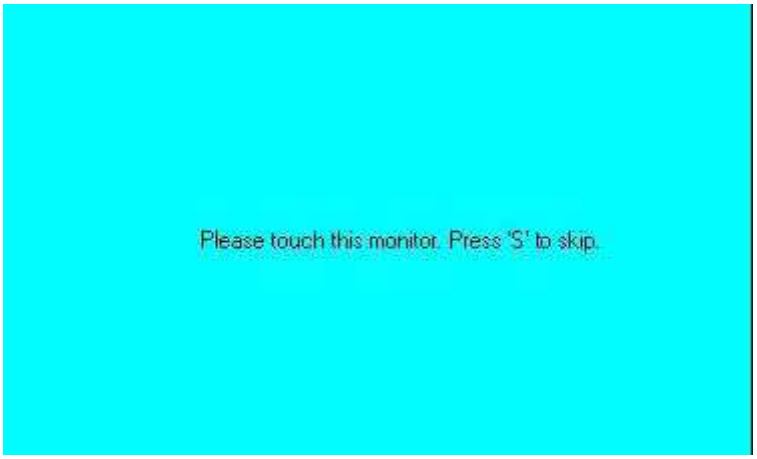
Step 1.In PenMount **Control Panel**, under **Multiple Monitors** tag, check the "**Multiple Monitor Support**" box. Then click "**Map Touchscreens**" to assign touch controllers to displays.



Step 2. When the mapping screen message appears, click **OK.**



Step 3. Touch each screen as it displays **Please touch this monitor. Press 'S' to skip** Following this sequence and touching each screen is called **mapping the touch screens**.



Step 4. After the setting procedure is finished, maybe you need to calibrate for each panel and controller.

NOTES:

1. If you used a single VGA output for multiple monitors, please do not use the **Multiple Monitors** function. Just follow the regular procedure for calibration on each of your desktop monitors.

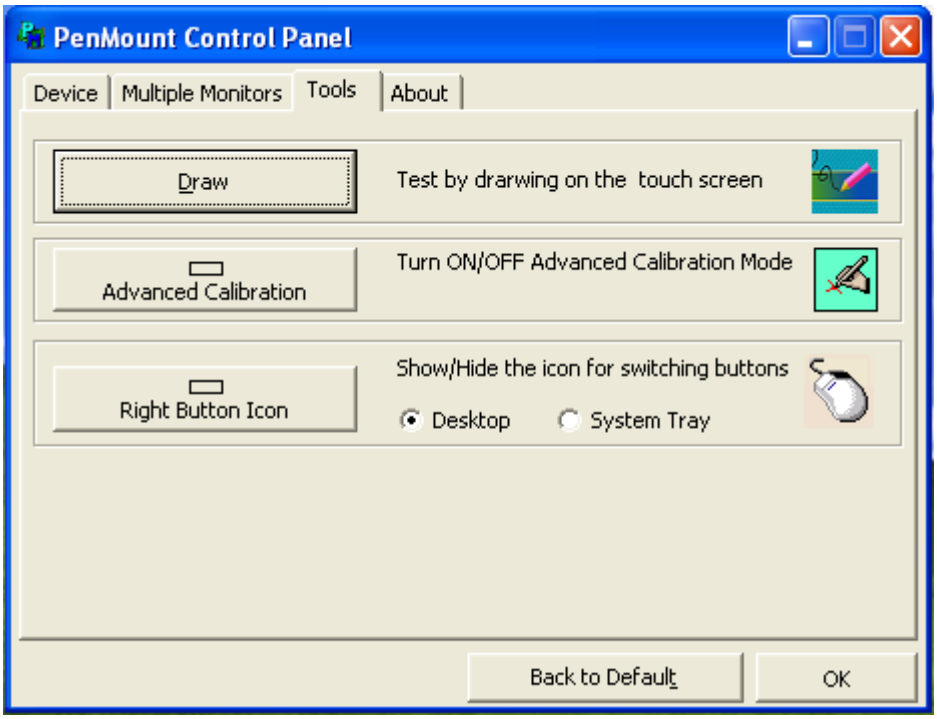
2. The Rotating function is disabled if you use the Multiple Monitors function.

3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens** so the system understands where the displays are.

4. If you more monitor mapping one touch screen, **Please press 'S' to skip mapping step.**

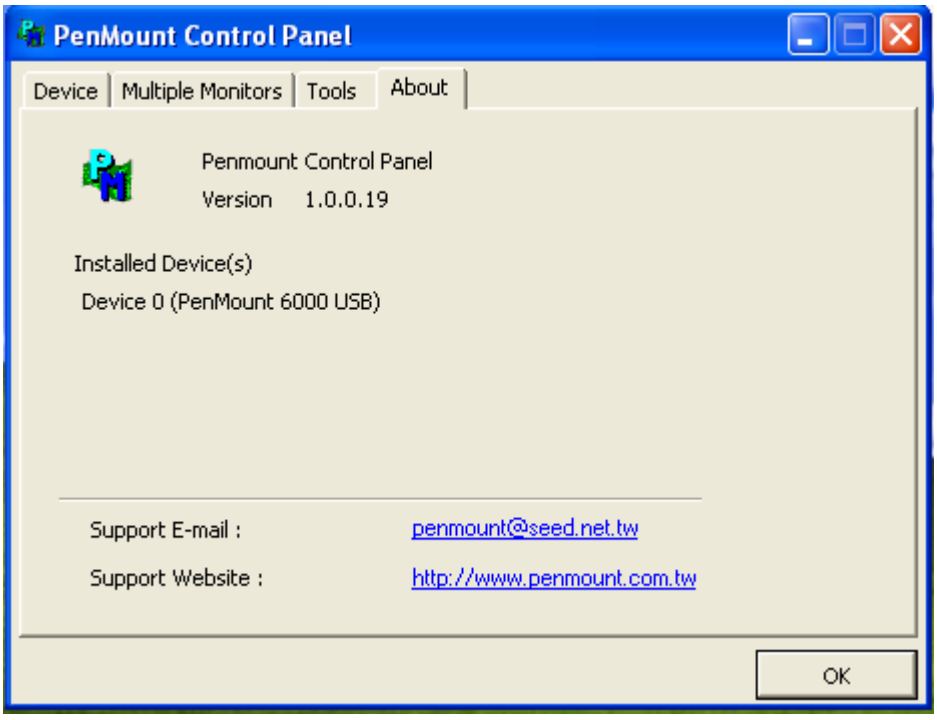
Tools

Draw	**Tests or demonstrates the PenMount touch screen operation.**
Advanced Calibration	**Enable Advanced Calibration function**
Right Button Icon	**Enable right button function. The icon can show on Desktop or System Tray (menu bar).**



About

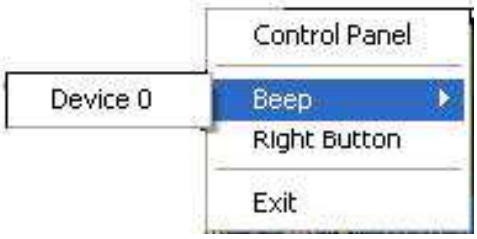
You can see how many devices of PenMount controller that are plugged to your system



PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP system when you turn on PenMount Monitor in PenMount Utilities.

PenMount Monitor has the following function



Control Panel	**Open Control Panel Windows**
Beep	**Setting Beep function for each device**
Right Button	**When you select this function, a mouse**  **icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.**
Exit	**Exits the PenMount Monitor function.**

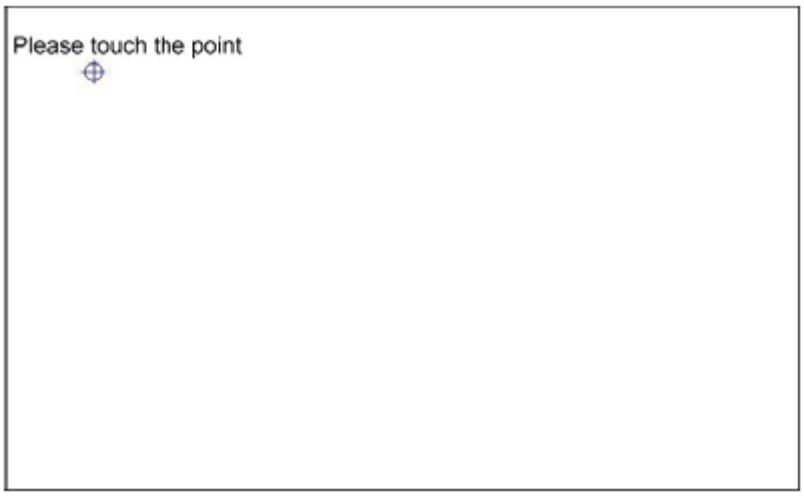
PenMount Rotating Functions

The PenMount driver for Windows 2000/XP supports several display rotating software packages. Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate Function

Configuring the Rotate Function

1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



NOTE: The Rotate function is disabled if you use Monitor Mapping